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U.S. ECONOMIC SITUATION IN 1980'S ANALYZED, CRITICIZED

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(signed to press 16 Oct 85) pp 3-14

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Some of the results of Reagan Administration activity in the sphere of economics, problems of inter-imperialist competition and trends in the development of social conflicts are examined in this article.

The Crisis of the Economic Mechanism

The crisis of the economic mechanism, which was already quite apparent in the 1970's, is one of American capitalism's main unresolved current problems. In particular, it has taken the form of more intense cyclical economic upsets, in their interaction with protracted structural crises and in a rise in unemployment unprecedented since the 1930's. It also takes the form of a general deceleration of economic development, chronic inflation, chaotic government finances, dramatically intensified monetary instability and disparities in balances of foreign trade and payments. In the 1970's and early 1980's there was a perceptible decline in the main indicators of the effectiveness of capitalist economic management in the United States: growth rates of labor productivity, the return on capital and profit margins; the relative lag behind the other two power centers of present-day capitalism--Western Europe and Japan--had serious consequences.

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All of these tendencies testify to the serious and protracted disruption of the conditions of the reproduction of social capital and to the appearance of

new severe conflicts in the development of American state-monopolist capitalism. In particular, these conflicts can be seen in the tendency of government anti-crisis measures to become one of the main factors intensifying economic crises.

At the beginning of the current decade the American ruling class made a radical attempt to stop the adverse turn of events. In 1980 the new Republican administration announced its intention to reduce government intervention in the economy, strengthen market principles in national economic management and encourage private capitalist initiative. President Reagan's economic program, which was approved by the Congress in 1981 and bore the pretentious title "New Beginning for America. A Program of Economic Recovery," envisaged a total reduction of 23 percent in taxes, benefiting primarily the wealthier strata, and the offer of substantial fiscal advantages to corporations, a freeze on federal spending, primarily through cuts in social programs, the minimization of government economic regulation (so-called "deregulation") and a restrictive monetary policy. This was accompanied by the commencement of a massive arms buildup, with the aim of disrupting the existing military balance and achieving military superiority to the USSR.

This program, which the American bourgeois press christened "Reaganomics," did not lead to real recovery and even compounded some of the ills of the American economy.

The Reagan Administration's economic policy did, however, signify a major reversal in the economic strategy of the dominant class, which had been based for almost half a century on the Keynesian method of regulating demand. The immediate cause of the reversal was the bourgeois government's inability to fight on two fronts at once--against inflation and against unemployment. The regulating methods used by various American administrations had temporarily relieved some conflicts by exacerbating others and had gradually put the capitalist economic mechanism out of commission and deformed the process of capital accumulation. The result of these contradictory methods of government intervention in the economy was the unprecedented "stagflation"--a combination of slow rates of economic growth and high rates of inflation. The existing system of state-monopolist economic regulation was in a state of severe crisis.

The Reagan Administration and the monopolist capitalist groups supporting it tried to replace regulation based on Keynesian recipes with another regulation strategy--"Reaganomics"--with so-called "supply-side economics" as its theoretical basis, representing an eclectic combination of bourgeois theories of monetarism and neoclassical concepts. It was supposed to "free private capitalist initiative from the fetters of government regulation" and effect a return to "unrestricted free enterprise." In reality, however, the discrepancy between "Reaganomics" as the sum of the Republican administration's declared principles and its actual economic policy was so obvious that even the most zealous supporters of neoconservatism could not deny it.

The final goal of the new system of regulation was the enhancement of the effectiveness of the American economy by means of the radical redistribution of national income in favor of monopolist capital and an increase in

productive accumulations. The results of the past few years, however, have been quite ambiguous. Furthermore, by the middle of the 1980's it became quite obvious that no "dismantling" or "curtailment" of government intervention in the U.S. economy had taken place. Indirect methods of regulation had come to the fore. Although fiscal revenues now account for a slightly lower percentage of the GNP, the total federal budget and its share of the GNP have continued to grow. Monetary regulation has changed direction but is no less active. The government has also been quite active in the sphere of fiscal policy. After cancelling a number of social programs, it shamelessly intervened in relations between labor and capital. It has also been quite lavish with contributions to save giant monopolies and banks in financial difficulty. The government has made unprecedented efforts to build up arms. It has intervened even more vigorously than before in foreign economic relations, unconditionally defending the interests of American corporations in the struggle against foreign competitors. All of this testifies that the bourgeois government in the United States is a "collective capitalist" and has no intention of surrendering any of the economic and political power on which the supremacy of the monopolist bourgeoisie rests. The main feature of state-monopolist capitalism, revealed by V. I. Lenin, the combination of "the gigantic force of capitalism with the gigantic force of government in a single mechanism,"¹ has been fully realized in today's America.

Contrary to the ideological self-advertisements of "Reaganomics," this is an active form of government interference in economic affairs, and a reactionary form at that, frequently inconsistent with the objective process of the collectivization of labor in the capitalist society.

Something else is equally obvious. The "simple solution to difficult problems" suggested by the neoconservatives did not produce the anticipated results and did not lead to the efficient reorganization of the economic mechanism. This is attested to by the devastating cyclical crisis of 1980-1982, the longest of the last 50 years, and by the unstable development of the economy in the post-crisis period. But whereas the most obvious results of U.S. economic ills in the 1970's were inflation and mass unemployment, in the 1980's the rise in unemployment (to 11 percent of the entire labor force during the economic crisis and to over 7 percent during the phase of upswing) has been accompanied by an unprecedented federal budget deficit of billions, a constantly growing public debt and a related extraordinary rise in interest rates. In essence, only the symptoms have changed. The illness itself, the crisis of economic regulation, has not been cured. "Reaganomics," just as other, earlier methods of state-monopolist regulation, testifies that the American bourgeoisie is unable to answer the main question of how the economy can be stimulated without causing inflation or the disruption of government finances--the two evils undermining the normal process of capital accumulation.

Contradictions of Scientific and Technical Progress and the Structural Reorganization of the Economy

The accelerated use of scientific and technical achievements and the mass dissemination of technical innovations justify the description of the current decade in the United States as the beginning of a new phase of the

technological revolution. Its essence consists of a transition to the construction of a technological order with fundamentally new ways of combining science with production at its center and the creation of new elements of physical and spiritual productive forces.

This is also attested to by the much higher rates of renewal of the industrial product (according to available estimates, it was 1.5 times as high in the mid-1980's as in the beginning of the 1970's),² the higher rates of increase in state and private capitalist R & D expenditures and the change in the nature of the reproductive process as a result of the radical growth of the value of R & D as an integral part of the reproduction of social capital.

Some serious advances in this sphere were the extensive use of "risk capital" and autonomous "innovative subdivisions" within the corporate framework and the objective augmentation of the role of small and medium-sized production units equipped with the latest technology and controlled by monopolies as a means of satisfying the public demand for specialized products.

Scientific and technical progress is the most important factor of U.S. economic growth and also the reason for increasingly severe conflicts in the American society. It develops in the acutely conflicting forms typical of state-monopolist capitalism, has a clearly defined militarist purpose and is accompanied by higher unemployment, the disruption of the ecological balance and other negative social consequences. It heightens the uneven development of production within specific industries and the differences between industries and spheres of the economy by changing their earlier relationships.

The American economic structure has been changing throughout the postwar period. The main changes have been a decline in the relative importance of agriculture, construction, transportation and mining and slight decline in the relative importance of industry, with a more important role being played by the fuel and energy complex. This has been accompanied by an increase in the importance of the production of non-material forms of wealth and services.³ In the middle of the 1980's this sphere accounted for 73 percent of the entire labor force outside agriculture.⁴

In industry, two parallel processes were apparent for a long time--the decline of the old basic sectors (the so-called "smokestack industries"--metallurgy and metal processing, the automotive industry, shipbuilding, agricultural machine building and the production of road machinery and equipment, and earlier--the textile, footwear and clothing industries) and the development of a rapidly growing group of new science-intensive sectors--computer production, microelectronics, communications, laser technology, fiber optics, the production of new materials, biotechnology and others using the latest achievements of scientific and technical progress.

The declining profit margin in old sectors made production less and less profitable. This gave rise to the transfer of capital to other, more profitable science-intensive industries, to the service sphere and to developing countries, where the relatively low cost of manpower produced higher profits in the old industries. Under the influence of the outflow of capital, the

basic American industries continued to decline, their production equipment was renewed at an obviously inadequate rate and the competitive potential of their products displayed a constant decline. As a result of this, a large part of the U.S. domestic market was controlled by foreign companies at the turn of the decade: 22 percent of the national steel market, 28 percent of the motor vehicle market and 56 percent of the household appliance market.⁵

As long as the production cuts affected only specific branches of light industry, American capital took a comparatively calm approach to this infiltration, viewing it as the inevitable result of the creation of a new, post-industrial economic structure. But as soon as the process affected the automobile--the symbol of the American way of life and the pride of industrial America--industrial capital, the scientific and technical community, politicians and labor unions sounded the alarm. There were increasingly loud warnings about the "de-industrialization of America," about the threat posed to national security by economic weakness and about the need for an "industrial policy."⁶

Participants in the debates on "industrial policy" invest this term with the most diverse meanings. Some believe that the bourgeois government must aid in the reconstruction of primarily old industries on a new technological basis, offering private capital the necessary long-term credit and financial grants for this purpose and giving it the necessary customs protection from foreign competition.⁷ Others feel that there is no point in subsidizing old industries, believing that attention should be focused on the priority development of "industries of the future"--that is, the most progressive science-intensive and high technology sectors on which the United States' leading position in the capitalist world depends.⁸ Still others have advocated a policy taking the interests of old and new industries into account simultaneously and have pointed out the mistaken and unrealistic nature of futurological fantasies about turning the U.S. economy primarily into a "service economy."⁹ There are even some Republicans and Democrats--for example, A. Greenspan, C. Schultze and others¹⁰--who believe that the government's attempts to direct investments in the economy are completely unjustifiable because these attempts will lead unavoidably to the inefficient use of economic resources, as only the market can secure their optimal use.

The economy is undergoing an active process of technical reorganization. Its chief aims are connected with the extensive use of microelectronics and information systems, the production of new materials and the mastery of the latest forms of technology. The process is being accelerated by the thorough computerization of production, including the use of machine tools with programmed control, data processing and storage centers, robots, flexible production systems and other modern means of automating production and control. The average annual rate of increase in computer production was 20-25 percent for several years following the end of the 1970's, and the output of personal computers doubled each year during the first half of the 1980's. The saturation of the market, however, has caused the rate of computer production to decline.

The economic crises of the 1970's and 1980's, the exacerbation of competition and the declining profit margin motivated American monopolist capital to

begin the retooling of the production system in earnest. Technically obsolete enterprises are being eliminated, and unprofitable facilities are being dismantled. In ferrous metallurgy, for example, more than 200 enterprises were closed between 1976 and 1984. This reduced the number of workers in the steel industry by 45 percent. In the automotive industry the cost of the overall production reconstruction undertaken by leading companies since 1979 has almost reached 80 billion dollars. According to available estimates, the use of robots in the American automotive industry also reduced the number of people employed in this industry by 20 percent in the mid-1980's in comparison to the pre-crisis period; furthermore, half of all of the motor vehicles produced in the United States will be assembled with the aid of automatic devices by 1988. It is possible that electronic automation could change the prospects of even such old branches as the textile and clothing industries.

American capitalism's ability to hold on to its leading position in the decisive areas of scientific and technical progress and to accomplish the structural reorganization of its economy more quickly and radically than other centers of imperialist competition will depend on the competitive positions of American monopolies in the world market and on the United States' own position in the world capitalist economy at the end of the 20th century.

Inter-imperialist Competition

The United States has displayed a relative lag in several fields in comparison to other centers of imperialist rivalry since the middle of the 20th century. This reflects a tendency characteristic of the imperialist stage of capitalism--the intensification of the uneven political and economic development of different states.

The dynamics of the development of American capitalism prove that the tendency toward this relative lag has not been steady. There have been two distinct stages in the changing balance of power among the main centers of imperialist competition.

The first was the period of the 1960's and 1970's. During this period, Western Europe and Japan were able to increase their share of world industrial production, international trade, capital exports and accumulations of gold reserves perceptibly.¹¹ Some indicators (for example, relative shares of world capitalist exports) testify that their position will continue to grow stronger in the 1980's, while others (relative shares of the industrial product of the non-socialist world) have a tendency to vacillate during different phases of the economic cycle. In general, however, the tendency of the United States to lag behind the two other imperialist centers was the prevailing tendency up to the end of the past decade.

The second period, which began at the turn of the decade, has been marked by the slight consolidation of U.S. global positions, and even by their expansion in some cases. On the strength of the intensive technical reorganization of its industry, the United States was able, at least in some sectors, to surmount the tendency toward relative underdevelopment. For example, in 1984 the United States surpassed Japan in terms of passenger car output for the

first time since 1979. Of course, this does not mean that Japan's competitive position in the American automobile market has grown weaker.

In general, it is obvious that this reversal is less due to the recovery of the American economy than to the deterioration of the conditions of reproduction in other competing centers, especially Western Europe, following the economic crises of 1973-1975 and of 1980-1982 in particular. Although both of them had a more severe effect on the United States than on Western Europe and although the United States was more vulnerable to the second than Japan, the American economy emerged from these crises a year earlier and then developed more quickly than the West European and Japanese economies in the post-crisis period. As a result of differences in rates of economic growth, the U.S. share of world industrial production stabilized and is now growing again, Japan's share is growing, although not as quickly as in the past, and the EEC's share is decreasing.

In the next few years the U.S. financial oligarchy plans to consolidate these changes by making use of scientific and technical superiority, the stronger position of American transnational corporations and existing advantages in the monetary sphere.

The United States has the greatest scientific and technical potential in the capitalist world and spends more on R & D than England, France, the FRG and Japan combined. It is true that a large part of this sum (around one-third) is used for military purposes, but the total sum is large enough to allow the United States to conduct scientific research in many fields and accomplish the relatively quick transformation of the findings of fundamental research into development projects and technical innovations. In the 1970's it seemed that the gap in science funding between the United States and other centers of imperialism was closing, but this process stopped in the 1980's and was replaced by a widening of the gap. American monopolist capital has a firm hold on superiority in such decisive fields of scientific and technical progress as the production of semiconductors, super-powerful integrated circuits, computers of all categories and their software, the aerospace industry, world ocean exploitation, telecommunications, laser technology and biotechnology.

American transnational corporations hold the leading position in the capitalist world not only in terms of the scales of their operations but also--and this is probably even more important--in terms of the role they play in the most advanced science-intensive fields. Whereas almost half of all American capital investments in Western Europe's processing industry are direct investments in machine building, West European investments in the same field in the United States account for less than one-fifth of the total.¹² A large portion is concentrated in trade, insurance and other services. This gives American TNC's a strategic advantage in the competitive struggle and allows them to control key high-technology markets and pressure their partners.

The U.S. position in the monetary sphere grew weaker in the last decade but has grown somewhat stronger in the 1980's. Although the United States has a negative balance of billions in trade and payments, it is a fact that in

1983 the 10 largest American banks had regained the top-ranking position in the world in terms of total assets, a position they had lost in the 1970's to their West European and Japanese rivals. Around 80 percent of all international credit operations are now conducted by U.S. banks. American dollars account for 75 percent of the currency reserves of central banks in the capitalist states, 55 percent of all international trade transactions are conducted in the American currency, and world oil prices are also set in dollars. All of this gives U.S. financial capital definite advantages over its rivals. American imperialism is actively using these advantages to transfer the burden of economic problems to other countries with the aid of high interest rates on bank credit and a high dollar exchange rate.

Nevertheless, the consolidation of U.S. positions in world trade, the international movement of capital and the monetary sphere, which became apparent in the early 1980's, cannot be regarded as a stable tendency. By the middle of the current decade unfavorable tendencies were already evident in all of these areas. Will the United States be able to correct the situation and consolidate changes in its favor in the "triangle" of imperialist forces? Or are these changes only a temporary deviation from the tendency toward a relative U.S. lag behind Western Europe and Japan?

Whatever might happen in the sphere of economic development, one thing is already clear: The serious aggravation of imperialist competition is a distinct possibility. Conflicts between the main centers of present-day capitalism are so severe and irreconcilable that the inter-imperialist struggle is continuing with unabating force despite the many years of attempts by the leading capitalist powers to coordinate their policy "on the highest level." Competitors are using foreign expansion by TNC's, government export subsidies, protectionism and trade and currency wars for the economic repartition of the capitalist world.¹³

The Arms Race

In the 1980's the development of American capitalism was increasingly influenced by the arms buildup of unprecedented scales. American ruling circles have invariably pursued the arms race policy since the end of World War II. In the 1980's, however, militarism became, more distinctly than ever before, the ideology and practice of American imperialism's interventionist foreign policy. It is not surprising that over a trillion dollars was spent on rearming in the United States in a period of 5 years (1981-1985)--more than in World War II (in comparable prices).

The purpose of this new round of the arms race is to disrupt the military-strategic balance and achieve military superiority to the USSR and the socialist community, regain American imperialism's dominant position in the world and tighten the bridle around the NATO allies.

The buildup of military potential is absorbing colossal resources and diverting them from productive use. Between the end of World War II and the start of the Reagan Administration (1946-1980), the United States spent 4.2 trillion dollars on rearming (in 1980 prices). With the inclusion of the 1.6 trillion

the United States plans to spend in 1981-1986 in accordance with Reagan's proposed military program, the total sum of military expenditures over four decades (1946-1986) will be around 6 trillion dollars (in 1980 prices).¹⁴ This is approximately equal to the combined internal debt of the U.S. Government, corporations and private citizens and is 7 or 8 times as great as the total debt of all developing countries.

If we compare total military spending over the last 40 years to total U.S. produced national wealth (representing the cost of all productive and non-productive assets, including military products and the property of the population and excluding the value of land as unproduced wealth), totaling 7.8 trillion dollars according to 1980 date (in 1980 prices),¹⁵ we find that the resources spent in the United States for military purposes during this period were sufficient for the production or replacement of four-fifths of the United States' man-made property today. This is the extent to which the economy has been bled by militarization and the expenditure of economic resources in unproductive ways.

The economic development of the United States, just as that of other NATO members participating in the arms race, testifies conclusively to the pernicious effects of the arms race on the economy. And it could not be otherwise. After all, the use of economic resources for military preparations wastes part of the social product and excludes these resources from the reproductive process year after year without any compensation. As Marx commented, in economic terms, war is tantamount to "a nation throwing part of its capital into the sea."¹⁶

In view of the fact that U.S. annual military expenditures account for almost half of all capital investments in buildings, machines and equipment (46 out of every 100 dollars, whereas in the FRG the figure is 18 dollars and in Japan it is 3.7 dollars),¹⁷ the lower rates of capital accumulation and fixed productive asset renewal in the United States are understandable. This also sheds light on the causes of the unsatisfactory state of the U.S. infrastructure, where municipal utilities require immediate major repairs and one-fifth of all federal highways and 13 percent of the bridges require restorative work without delay. The total cost of putting just the network of U.S. roads in order has been estimated at 700 billion dollars.¹⁸

A study prepared by the U.S. Council on Economic Priorities and entitled "The Cost and Consequences of Reagan's Military Buildup" analyzes the relationship between total military spending and a number of basic economic indicators, such as labor productivity, accumulation norms and rates of economic growth, in the United States and 12 other leading capitalist countries. The authors' conclusion is unequivocal: There is a statistically significant reverse correlation between proportional military expenditures in the GNP and these economic indicators. For example, at the highest level of military spending the United States ranks 13th in terms of production accumulations in the private sector and 11th in terms of the growth rates of economic development and labor productivity.¹⁹ This reaffirms the repeated evaluations in Soviet and foreign progressive economic literature of the pernicious effect of the arms race and militarization on economic development.²⁰

The antisocial consequences of the arms buildup are equally obvious. In addition to the restraining effect of military production on employment (which was re-emphasized in the report of the international Palme commission),²¹ the U.S. budget in the 1980's provides ample evidence of the clear and direct connection between increasing military spending and cuts in allocations for social needs. Whereas the proportion accounted for by military expenditures in the federal budget of the Reagan Administration rose from 24 percent in 1981 to 29 percent in 1984 and is expected to reach 34 percent by 1988, proportional civilian expenditures as a whole have declined, and expenditures on many social programs have decreased even in absolute terms, especially in constant prices. This is injuring the interests of broad strata of the American population, especially the underprivileged, is increasing social friction and is creating a general atmosphere in which it is easier for monopolist capital to wage an assault on the social gains of the working class.

Strategy Destined To Fail

The strategy of U.S. monopolist capital consists in putting most of the burden of economic difficulties and contradictions on the working class, the broad laboring and exploited masses, primarily in its own country and also in other capitalist and developing countries. In the 1980's, American state-monopolist capitalism has actively implemented this reactionary economic strategy within the country and abroad.

High interest rates brought a great deal of capital into the United States from abroad in the 1980's. For this reason, the United States was able for several years to surmount the contradiction between the interests of the bourgeois state and private borrowers of capital in the domestic credit market with outside sources of financing. Revenues from the sale of government bonds were used to partially cover the federal budget deficit. In this way American imperialism forced other countries to finance part of its military expenditures and a rising percentage of domestic capital investments. In the 1980's foreign capital sometimes accounted for almost half of all new investments in the economy. This gave American monopolist capital a chance to compensate to some degree for the declining effectiveness of its own economic mechanism and the deformation of the capital accumulation process as a result of colossal unproductive expenditures.

The other side of the coin of this transfer of financial resources from other bourgeois states was a rapid increase in the U.S. foreign debt. In 1983 U.S. overseas capital investments already totaled 834 billion dollars, and foreign investments in the United States were 711 billion, but preliminary estimates put the figures at 950 billion and 975 billion in 1985. This means that the biggest creditor in the capitalist world turned into a net debtor in the middle of the 1980's. No one could have foreseen this turn of events even at the beginning of the 1980's.

Of course, the importance of this fact should not be exaggerated. The United States was and is the financial bulwark of capitalism and the biggest exporter of capital. It is exceptionally important that the lion's share of its

assets abroad is made up of long-term direct capital investments, allowing American monopolies to earn steady high profits and to influence, and sometimes even control, the economic and political development of other countries. Foreign assets in the United States, on the other hand, consist largely of short-term investments in the securities of the U.S. Treasury and private capitalist firms. Although these securities produce a high income, their owners have no real control over the U.S. economy. The American Government and monopolies decide how these funds are to be used. Therefore, despite the fact that the United States has become a debtor, it is still the main financial center of present-day capitalism, it is still exporting capital and it still personifies the "parasitism to the second power" to which V. I. Lenin referred.

Nevertheless, the changing financial status of the United States reflects the mounting instability of its credit rating. It is still not clear whether its foreign debt will continue to grow or whether the decline of the dollar exchange rate will start the massive outflow of speculative "hot money" from the country. In any case, such major changes in the international movement of capital could cause the most serious upheavals in capitalism's entire system of currency and finances. In particular, they could undermine the basis allowing the United States to finance part of its arms programs and capital investments in civilian sectors by reducing real accumulations in other countries.

The policy of transferring the economic burden to the laboring public within the country is just as contradictory. Since the beginning of the 1980's American monopolist capital has openly moved from forced concessions and social maneuvers to a class assault on the vital rights and interests of the laboring public. During these years the monopolies and the government have been able to deprive labor of many of the social gains it won in the stubborn struggle from the 1950's to the mid-1970's. The monopolies have been aided in this assault by the unemployed status of millions of workers, the stricter requirements on manpower in connection with the new wave of capitalist production efficiency and other conditions favoring the "social revenge" of the corporations.

The monopolies have concentrated their main attack on organized labor. They are trying to push labor unions as far back as possible by forcing them to accept worse terms of collective bargaining, by reducing the number of workers belonging to unions and by hindering the registration of new labor organizations to give themselves a free hand in the exploitation of labor.

On the pretext of more efficient production, they have shamelessly cut wages, revised labor safety requirements at enterprises, cancelled some environmental protection regulations and minimized the impact of those remaining in force. Hundreds of thousands of skilled workers were laid off in the 1980's, and most of them could not hope to ever find another job. The pressure of the reserve labor force considerably weakens the position of the employed part of the working class and changes the nature of its demands. Whereas in the 1960's the American working class was fighting primarily to improve working conditions, to surmount its "alienation" and to participate in enterprise administration, in the 1980's the main issue in the economic struggle between labor

and capital is once again the maintenance of real wages and the cessation of the deterioration of the quality of life. The cause of this change in demands is quite obvious: The average real weekly wage of workers in production decreased by 13 percent between 1972 and 1984, returning to the 1962-1963 level.²²

A heated battle broke out in the 1980's over the social policy of the government. Monopolist capital is demanding radical cuts in social programs, which are being called one of the main reasons for the reduction of profits, the escalation of inflation and the growth of budget deficits. The bourgeois government, which is so generous with federal budget funds for military purposes, is shamelessly cutting allocations for social needs--housing construction, education, medical care, unemployment compensation, vocational and technical training and the retraining of manpower, food assistance for the poor, meals for schoolchildren and public works. Cuts in social programs from 1981 to 1985 exceeded 120 billion dollars.²³

The 1981 tax legislation transferred even more of the tax burden from corporate profits to the general public. The proportion accounted for by corporations in total U.S. federal revenues decreased from 25 percent in the 1960's to less than 5 percent in the 1980's, and many giant monopolies made use of loopholes in tax laws and paid no taxes at all in 1983-1985. At the same time, social insurance deductions from workers' wages, indirect taxes, excise taxes, and state and local taxes were increased.

The assault launched by the monopolies and the restrictive social policy of the government perceptibly lowered the standard of living of American labor. The number of people living below the official poverty level has risen dramatically under the Reagan Administration and had almost reached 37 million in 1985. There are now around 3 million homeless people in the richest capitalist country, and charity soup kitchens are being opened again for unemployed people who are no longer eligible for benefits and other people living on the verge of starvation.

The government is trying to restrain public protests by making more extensive use of a repressive policy. The Reagan Administration's ruthless treatment of the air traffic controllers' union in 1981 was not only intended to punish a few thousand strikers but also to frighten the entire American working class and undermine the labor unions' determination to fight for the interests of labor.

Natural trends in social development, however, cannot be changed or cancelled by means of repression. Rebellious feelings are growing in the many workers who have been laid off by factories and plants, in young people who have graduated but have no job prospects and in millions of black and Hispanic Americans. As the living conditions of the broad popular masses deteriorate and they realize the implications of the government's antisocial policy, the struggle will unavoidably be intensified. This struggle against the social attacks of monopolies is interrelated with the demonstrations of ethnic minorities against racial and ethnic oppression and with the broad-based democratic antiwar movement.

It is clear, however, that the rightwing assault also has a broad base, and it has grown even stronger as a result of Reagan Administration policy. At the time when state-monopolist regulation was leading to higher inflation and taxes without securing economic prosperity or social stability, a large segment of the laboring public was willing to give at least passive support to the rightwing experiment with its emphasis on market methods of solving problems and on the individualistic principle of "taking care of number one." The right wing was also able to distract the average American with jingoist demagoguery and such shows of American "strength" as the invasion of Grenada. But the stability and duration of the right wing's popularity among voters are still in question. It is already clear that the rightward shift did not solve old problems, and it even created new ones. The bankrupt "welfare state" in the United States is facing new social upheavals.

FOOTNOTES

1. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], vol 32, p 83.
2. "29th Annual McGraw-Hill Survey of Business Plans for Research and Development Expenditures, 1984-1987," N.Y., 1984, p 23.
3. American statistics including the following sectors in this sphere: trade (wholesale and retail), transportation, communications, utilities, finance, insurance, real estate transactions, administration, education, public health and other services.
4. Calculated according to: EMPLOYMENT AND EARNINGS, January 1984. Also see "The Service Economy and Industrial Change. Hearings Before the Joint Economic Committee, Congress of the United States, 98th Congress, 2d Session, April 4 and 11, 1984," Wash., 1984, p 2.
5. "U.S. Industrial Outlook 1984," U.S. Department of Commerce, 1984, pp 18-4, 31-4, 43-8; THE BROOKINGS REVIEW, Summer 1984, p 9.
6. R. Reich, "The New American Frontier," N.Y., 1983.
7. F. Rohatyn, "Reconstructing America," THE NEW YORK REVIEW OF BOOKS, 5 March 1981, p 16.
8. BUSINESS WEEK, 4 July 1984, pp 37-38.
9. L. Thurow, "The Case for Industrial Policies," 1983, pp 5-7; R. Lawrence, "Can America Compete?" Wash., 1984, pp 87-116.
10. BUSINESS WEEK, 4 July 1983, p 40.
11. For more detail, see V. Shenayev, Ye. Khesin and Yu. Yudanov, "The Battle in the 'Triangle of Forces,'" PROBLEMY MIRA I SOTSIALIZMA, 1984, No 2, pp 89-94.

12. SURVEY OF CURRENT BUSINESS, August 1982, pp 37, 45.
13. For more detail, see A. I. Shapiro, "Sovremennyye problemy i perspektivy mirovogo kapitalisticheskogo khozyaystva" [The Current Problems and Prospects of the World Capitalist Economy], Moscow, 1984.
14. Calculated according to: "Statistical Abstract of the United States," 1981, p 354; 1954, p 241; "The Budget of the U.S. Government. Fiscal Year 1978," p 436; "Economic Report of the President, February 1983," pp 246, 247.
15. "Statistical Abstract of the United States," 1984, p 479.
16. K. Marx and F. Engels, "Works," vol 46, pt 1, p 67.
17. THE NEW YORK TIMES, 26 July 1981.
18. "Infrastructure: A National Challenge. Hearings Before the Subcommittee on Economic Goals and Intergovernmental Policy," 29 February 1984, p 1.
19. R. Degrasse and W. Rage, "The Cost and Consequences of Reagan's Military Buildup," N.Y., 1982, pp 51-52.
20. In particular, see R. A. Faramazyan, "Voyennaya ekonomika amerikanskogo imperializma" [The Military Economy of American Imperialism], Moscow, 1983; Yu. Ye. Vlasyevich, "Ekonomicheskoye bremya militarizma" [The Economic Burden of Militarism], Moscow, 1980; Ye. V. Bugrov, "Voyenno-promyshlennyye kompleks SShA--ugroza miru" [The U.S. Military-Industrial Complex--A Threat to Peace], Moscow, 1983.
21. "Common Security. A Program for Disarmament," Report of the Independent Commission on Disarmament and Security Issues under the Chairmanship of Olof Palme, translated from English, Moscow, 1982, pp 120-123.
22. Calculated according to: "Economic Report of the President, February 1985," p 277.
23. "A Guide to the Reagan Budget. Heritage Foundation Backgrounder," Wash., 1985, p 3.

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SDI ADVOCATES ATTEMPT TO 'CHANGE BLACK INTO WHITE'

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 11, Nov 85
(signed to press 16 Oct 85) pp 15-25

[Article by R. S. Ovinnikov: "What Lurks Behind the 'Star Wars' Strategy"; passages rendered in all capital letters are printed in boldface in source]

[Text] "As for the 'Star Wars' program, we cannot give any serious consideration to the allegations that the SDI will secure invulnerability to nuclear attacks and thereby lead to the elimination of nuclear weapons.... There is no question that this plan will escalate the arms race in all areas, and this means that the danger of war will increase" (from M. S. Gorbachev's answers to TIME magazine, reprinted in PRAVDA, 2 September 1985).

Even before World War II was over, the United States had created a qualitatively new weapon for the mass destruction of people--the atomic bomb. Nuclear, and then thermonuclear, weapons became the focal point of the imperialist policy of the United States and the NATO bloc in the next four decades. This policy is known to have taken its most dangerous forms for the future of all mankind in recent years, under the current administration.

In March 1983 the President announced the SDI program (the so-called "strategic defense initiative"), alleging that it would only exercise the legal right of the United States to defend itself and, as he said, would not threaten anyone because it "would not kill anyone."¹

It is impossible to believe this, and primarily because the material content of the SDI itself testifies to something quite different.

Words and Deeds

Since the time the "strategic defense initiative" (SDI) was officially announced, an industry has been established across the ocean to advertise it, embellish it and sell it to the average American and, if possible, to the United States' allies. The power of this colossal network and its concentrated pressure cannot be ignored, particularly since the people there are so generous with financing. Nevertheless, it is an irrefutable fact that the

entire propaganda campaign directed by the administration is based on misinformation and attempts to portray black as white.

We will examine the basic postulates of the SDI's promoters in the United States and what actually lurks behind them.

THE FIRST POSTULATE, and perhaps the main one: The Strategic Defense Initiative, they say, actually pursues purely defensive goals. In its latest, updated forms, this thesis can be reduced to the following two specific statements. First of all, as President Reagan said this June in reference to the SDI when he was interviewed by Radio Liberty and Radio Free Europe, "if we (the United States--R. O.) acquire a weapon, we do this exclusively for the purpose of self-defense." Secondly, as Lt General J. Abrahamson, the man appointed in the United States to head the SDI project, declared a few days later in a televised ABC interview, "the goal of the program is quite noble: to find a way of preventing nuclear war and war in general."

Now we will look at the hidden purpose of the American program for the militarization of space. It is revealed in remarks by individuals instrumental in the formation of the current administration. They once felt no need to conceal their real intentions. For example, J. Kemp, who later became a National Security Council official, addressed a gathering of "hawks" in 1979, when they were still planning their breakthrough, and said, "there is no organic reason why the United States could not develop superior military potential in space.... The United States should regain the sense of divine predestination. If this sounds a little too jingoistic and imperious, so what?"² But this is what might be called the emotional side of the reinforced hegemonic ambitions of American imperialism.

Others spoke of the same aims more prosaically and coldbloodedly--for example, C. Gray, who was aiming for the position of deputy director of the Arms Control and Disarmament Agency in Reagan's first administration and later became a State Department adviser. In the same year of 1979, he wrote an article in which the plans to militarize space were directly and clearly linked with the plans to start a nuclear war against the USSR. It is useful today to recall the frank statements made when the "Star Wars" program was in its infancy.

At that time, Gray suggested that the United States consciously plan to fight a nuclear war against the Soviet Union and win it. He called the "collapse of the Soviet political system" and the "death of the Soviet State" the "politically justified goal" of this war. "Fighting an intercontinental nuclear war intelligently" and winning it, Gray continued, would require a number of preconditions. He felt that the first of these was the restoration of the United States' "strategic superiority." The second precondition was protection from Soviet nuclear retaliation. In Gray's opinion, complete protection would be impossible and even unnecessary. It would be required, he said, only to the degree that unavoidable American losses would be "acceptable." In his words, "if the American society is completely open to Soviet retaliation,"³ and if probable U.S. losses "exceed 100 million Americans," no American President, unfortunately, will take the risk of starting a nuclear war against

the USSR.⁴ (Later, in 1980, Gray defined losses of 20 million Americans or more as an acceptable figure for the United States in a more famous article he co-wrote with C. Paine.⁵ In 1981, others of this opinion said that "even 20 percent of the population" of the United States--that is, around 50 million people--would be acceptable in the interest of destroying socialism.)⁶ In other words, attitudes were openly cannibalistic from the very beginning toward the USSR and toward the Americans themselves--it was assumed that tens of millions of Americans would die in a thermonuclear war.

In accordance with this approach ("strategic superiority" and "acceptable" losses), Gray said that the third and main condition for fighting and winning a nuclear war against the Soviet Union was nothing other than the preliminary creation of an "antiballistic missile defense system." Only it, he said, "will make it possible for the United States to fight a lengthy war and organize the mass production of the means of warfare for a final victory." This is why, Gray exclaimed, the United States should approve of the emphasis on defense"--protection against Soviet ballistic missiles.⁷

This is the real, openly aggressive essence of the new American doctrine, which is actually a strategic OFFENSIVE, and not "strategic defensive," initiative of the most adventurist forces of American imperialism. Those who strive for world domination will inevitably make preparations for aggressive wars. "World domination," V. I. Lenin stressed, "is, in short, the purpose of imperialist policy, and imperialist war is an extension of this policy."⁸

THE SECOND POSTULATE: The SDI is needed to make nuclear weapons "obsolete and unnecessary."

This is another case of an attempt to conceal the aggressive essence of the "Star Wars" program. This is evident from the fact that the acquisition of a "space shield" by the United States is only one element of its strategy. Another integral part, the other side of the coin, is the related acquisition of the ability to use a "nuclear sword" with impunity. This is precisely why the U.S. administration has stubbornly refused to follow the Soviet Union's example and pledge no first use of nuclear weapons. Under the cover of loud propagandistic declarations that nuclear weapons will soon become "unnecessary," the United States is working on an unprecedented program for the buildup of offensive nuclear weapons and the means of their delivery. It includes a dramatic increase in the number of nuclear warheads, the development of the new MX intercontinental ballistic missiles, the production of the strategic B-1 bomber, the production of the newest D-5 missiles for submarines of the "Trident" class, the equipping of the Air Force and Navy with long-range cruise missiles and the deployment of land-based Pershing II nuclear missiles in Western Europe.

Under these conditions, it was not surprising that information was leaked to the American press that the Pentagon had begun working on a plan to reorganize the command structure of nuclear warfare. This reorganization would solidly "integrate" American offensive nuclear forces with the projected antinuclear protection and "would coordinate the potential use of these weapons." The

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NEW YORK TIMES commented that this plan was "designed to unite the nuclear sword with the antinuclear shield."⁹ Few believed the Pentagon's official denials.

THE THIRD POSTULATE: It is impossible "to stop the development of technology," and this unavoidably puts the possible neutralization of ballistic missiles on the agenda.

The fact is that the creation of new weapons is certainly not, as historical experience demonstrates, the unexpected result or unanticipated consequence of technical development. This is primarily the final product of conscious and deliberate political decisions. A study published recently in the United States, "From H-Bomb to Star Wars," argues conclusively that the hydrogen bomb would not have been developed in the United States if the entire process had not been instigated by deliberate decisions on the part of the administration. In precisely the same way, the study says, the "Strategic Defense Initiative" cannot be implemented unless colossal sums are consciously allocated for this purpose. The author of the book correctly sees the solution to the problem not in a new sphere of the arms race in outer space, but in a U.S.-Soviet agreement to ban the "Star Wars" program.

But this is precisely what the current American administration does not want to do. On the contrary, it is literally obsessed with developing the technology for the establishment of a militaristic program in space at any cost. The colossal sum of 26 billion dollars has already been allocated for this purpose. The complete realization of the "Star Wars" idea will require, according to available estimates, the astronomical sum of a trillion dollars.

THE FOURTH POSTULATE, now surreptitiously withdrawn but nevertheless indicative: As proof of the peaceful nature of its military space programs, the United States will be willing to "share" the results of its research with the Soviet Union. President Reagan first made this statement a week after the SDI program was announced and repeated it during the 1984 presidential campaign.

Obviously, this was a virtual admission that the United States was not worried about any kind of Soviet "secret research" in this sphere but, rather, was prepared to discover this new path on its own and progress further along it. Incidentally, the vulnerability of this admission soon became obvious. In this way, Washington had imprudently assumed the responsibility for launching the arms race in a new sphere--in space. Furthermore, the offer to "share" something with the Soviet Union could have been withdrawn for other reasons after the presidential elections.

In spring 1985 a "new and improved" version of the "Star Wars" program was proposed. There was no more talk about the United States "offering" the USSR the use of SDI research findings at some time in the future. Instead, there was an uproar over the news that the USSR had allegedly already moved "far ahead" in this kind of research and that the United States, as it turned out, simply had to "catch up" with the Soviet Union in this sphere.¹¹

Frankly, it was clear from the very beginning that the United States was researching the "Star Wars" technology not at all for the purpose of strengthening mutual security in conjunction with the USSR, but for the purpose of securing its own military superiority. But now the SDI, like a snake, was shedding another superfluous outer layer.

THE FIFTH POSTULATE. The implementation of the SDI will supposedly strengthen stability in the world, reduce the risk of thermonuclear war and improve the chances of arms control.

The fact that the SDI will have the direct opposite results and will destabilize the strategic situation warrants special discussion. It is an irony of fate that the most zealous advocates of the theory of this kind of "stabilization" are precisely the two Americans who openly advocated an aggressive nuclear war against the Soviet Union with the use of space-based weapons just a few years ago. They are C. Gray and C. Paine. After learning that the majority of Americans rejected their "cannibalistic" theories, they tried, without the slightest twinge of conscience, to conceal the aggressive essence of the "Star Wars" program by over-emphasizing its supposedly "positive" aspects. This is the clearly hypocritical purpose of their articles "The Means of Deterrence, Arms Control and the Move Toward Defense" and "Strategic Defense and Stability."¹² Even American authors have been amazed by this omnivorousness.¹³

The involvement of such individuals as C. Gray and C. Paine in the campaign to touch up the "Star Wars" program provides further evidence of its organic hypocrisy. Incidentally, recent articles in the American journal HARPER'S MAGAZINE have indicated the following: The most zealous American militarists among the propagandists of "Star Wars" are striving to portray the program as the basis of "a new approach to arms control." Their real hope is that this "would allow the United States to make decisive and unilateral advances in an immediate antiballistic missile defense program" (this is quoted from a published classified document).¹⁴

In general, the colossal gap between the words and deeds of overseas politicians with regard to the notorious "Strategic Defense Initiative" is completely obvious. As General Secretary of the CPSU Central Committee M. S. Gorbachev aptly remarked in reference to this: "They speak of defense but prepare for attack, they publicize the space shield but are forging a space sword, they promise to eliminate nuclear weapons but are actually building them up and improving them. They promise the world stability but are trying to disrupt the military balance."¹⁵

It is important to prevent the militarization of space under these conditions because the most aggressive and militaristic forces in the United States hope to reach their goals in a roundabout way, through space--the goals of disrupting the existing approximate strategic balance between the United States and the USSR and achieving their longed-for superiority for a decisive attack on socialism. Their frontal attack on this balance, which can already be definitely ascertained, has failed.

The Parity Strait-Jacket

As historical experience has demonstrated, the logic of nuclear confrontation in today's world is such that the Soviet Union can only safeguard its security by preventing the United States from acquiring any kind of perceptible military strategic advantages. This would give the most adventurist imperialist forces the illusion that a first strike could be delivered with impunity and it would thereby increase the risk of thermonuclear catastrophe. Only the inevitability of retaliation by the USSR can hold the fans of nuclear adventures in check.

It was precisely this kind of adventurist trend that prevailed in U.S. policy when the United States had first a monopoly and then significant superiority in the sphere of nuclear weapons. In particular, the first half of the 1950's was extremely critical in this respect. The fact that the USSR had been able to reduce the gap between it and the United States by developing its own nuclear weapon evoked the most unambiguous response across the ocean. American ruling circles were strongly tempted to deliver a nuclear strike against the Soviet Union "before it was too late." Irrefutable evidence of this can be found in now declassified official documents.

Now it is known, for example, that the following decision was made in March 1953 at a meeting of the National Security Council: "The taboos surrounding the use of the atomic bomb must be broken."¹⁶ In August of the same year, President D. Eisenhower said in an official memo that the United States would probably have to consider starting an atomic war against the USSR when the time was right.¹⁷ The attitudes of the American administration gradually turned into obsessions. English diplomatic documents of that time, published at the beginning of 1985, indicate that an extremely alarming conclusion was drawn at an English cabinet meeting in those days: "The greatest risk is that the United States might push the world into war."¹⁸

A special research group was created in the Council on Foreign Relations, the "shadow State Department" of the United States. The issue of whether nuclear weapons should be used against the USSR or whether the best opportunity for this had already been lost was hotly debated by this group. Council archives indicate that during these discussions P. Nitze (now the President's special representative in matters pertaining to disarmament and one of the advocates of "Star Wars") actually stated the following: "Even if a war would destroy the entire world as we know it, the United States should still win a decisive victory."¹⁹

Documents also indicate what kept U.S. ruling circles from delivering a nuclear strike against the Soviet Union at that time--only the fear of retaliation. For example, when the same Nitze submitted a detailed plan to the Council on Foreign Relations in January 1955 on ways of gaining domestic American support for a nuclear war against the USSR, D. Rockefeller, a member of the famous family, stated that this plan signified actual preparations for a "preventive war" against the Soviet Union and expressed serious doubts as to whether "an initial attack by the United States might be successful in destroying the Soviet potential for retaliation."²⁰

As one American study notes, only the appearance of ballistic missiles, which put an end to U.S. invulnerability, forced the Eisenhower Administration to completely give up the scenario of "total war" against the USSR. One high-ranking Pentagon official said in this connection that delivering a strike against the Soviet Union would make sense only if this would disarm it. But the development of Soviet ballistic missiles, he concluded, had made this kind of operation "impossible and therefore meaningless."²¹

It is an immutable fact of history that a fundamental change for the better in international affairs occurred only when the Soviet Union was able to reach a position of approximate military-strategic parity with the United States at the beginning of the 1970's. The most important and most widely acknowledged result of this was the relaxation of international tension, or detente.

Henry Kissinger, then the President's national security adviser, had this to say in his memoirs: "It was not necessary to postulate a Soviet advantage in strategic weapons.... Even U.S.-Soviet equality in strategic weapons implied a revolutionary change." The nature of the change was, Kissinger went on to say, that after "the Soviets had achieved parity in numbers of strategic delivery," any "resort to strategic nuclear war...became (for the West--R. O.) less and less credible."²² In other words, realism began to triumph and prevail in U.S. policy at that time. Military-strategic parity acted as a reliable strait-jacket.

Mankind had an opportunity to eliminate the danger of thermonuclear catastrophe. Parity and equivalent security began to be clothed in the durable garments of contracts and codes. Agreements designed to break the vicious circle of the creation of more and more new weapons and counterweapons were an important milestone in Soviet-American relations. Above all, these include the agreement on the limitation of strategic offensive arms and the related treaty on the limitation of ABM systems, concluded in Moscow in 1972. The next year, in 1973, a Soviet-American agreement on the prevention of nuclear war was signed in Washington. Finally, 6 years later, in 1979, a new Soviet-American treaty on the limitation of strategic offensive arms (SALT II) was signed. It established equivalent ceilings and projected real reductions.

For the Soviet Union, this was a conscious and thoroughly considered choice. The limitation and reduction of arms, and not the arms race, are its principled policy. In 1981 a report of the American UN Association stated that "arms limitation talks are evidently still a part of the Soviet Union's long-range strategy of interrelations with the West." It underscored the following: "The Soviets seem particularly interested in the kind of talks and agreements that would reaffirm their parity with the West..., reduce the risk of nuclear war, limit the ability of the United States to use force in strategically important regions and lower the cost of Soviet defense."²³ By that time, however, the attitudes of U.S. ruling circles had undergone a serious change.

Parity and the related limitations grew increasingly irritating to militarists and aggressive forces in the United States. Describing their aims, one prominent American nuclear theorist, B. Brodie, wrote in 1978 that "their common goal was to find some kind of possibilities outside the confines of the strait-jacket of deterrence."²⁴

The path chosen by these forces was defective to the core and adventurist to the maximum. After consciously rejecting the only reasonable nuclear-age goal of PREVENTING nuclear war, they began to seek ways of FIGHTING this kind of war. Under the conditions of the U.S.-Soviet parity in nuclear missiles, they saw this kind of possibility in the introduction of tactical changes in American nuclear strategy, leading to the acquisition of the desired advantages. The first qualitative step in this direction was the 1974 "Schlesinger doctrine," named after the secretary of defense of that time, on the retargeting of American strategic missiles from civilian objects on Soviet territory to Soviet ballistic missiles. This "counterforce" option was essentially based on the assumption of a first strike against the Soviet Union to put its retaliatory forces out of commission. The second milestone along this path was President Carter's Directive 59, signed in 1979 and envisaging "protracted but limited" nuclear war against the USSR. The new Republican administration made a qualitative advance in 1981: It decided to renounce parity in strategic arms with the Soviet Union, so that the United States could return to the days of indisputable superiority. This is precisely the essence of the "Star Wars" idea.

The Real Aims

Those who have been lulled today by the talk about the "exclusively defensive" nature of the SDI should remember what was being said, and said openly, at the start of the current American administration.

At that time, as we know, militarist fervor gave rise to extremely belligerent speeches. Many U.S. officials began to believe that the Pentagon's bucking military machine was capable of crushing any adversary. Official statements were made to the effect that all it would take to win a nuclear war would be thorough preparation (Vice-President G. Bush). A special term was coined: That the U.S. aim consisted in "prevailing" over the USSR in this kind of war (Secretary of Defense C. Weinberger and presidential adviser T. Reed). R. Pipes, another of the President's advisers, said that the Soviet Union would either have to change its system or face a war: "There is no other alternative." These speeches were accompanied by an unprecedented buildup of U.S. military programs. All of them were openly intended to make the United States strategically superior to the Soviet Union.

If this frontal attack on parity misfired, it was certainly not due to a lack of zeal in its supporters. Their excessively frank disclosures of their plans for nuclear war shocked millions of average Americans. They also shocked the United States' NATO allies, whose territory was earmarked as the theater of "limited" nuclear war. A mass movement was launched in the United States and Western Europe to put an end to this madness and to put a freeze on nuclear weapons. But the main obstacle in the path of the adventurists was the Soviet Union's commensurate, firm and effective countermeasures. As a result, the nuclear arms race Washington had launched did not give it the desired advantages. Not one of the new U.S. weapon systems did or could make the United States more certain of its own invulnerability or, consequently, its ability to act with impunity.

It would seem that common sense should have prevailed in U.S. ruling circles in this atmosphere, but this was not the case. On the contrary, another attempt was made to break out of the strait-jacket of parity. The militarization of space was chosen as the magic means of solving all of the problems disturbing those who wanted to return the United States to the days of its invulnerability.

Under these conditions, some people are discussing the final goals of the "Star Wars" program in the bluntest of terms. For example, American Congressman N. Gingrich and White House counselor J. Muncie made the following statement: "At the beginning of the 20th century, whoever controlled the air was also dominant in military operations. Now, whoever controls space will be dominant in war--and in peacetime."²⁵ Other explanations have been more vague, but the real purpose of the Pentagon's insistence on so-called "defense against ballistic missiles" is obvious. It certainly leaves no doubts, for example, in the American specialists who have tried to get to the heart of the matter. In their opinion, the "logical basis" and "philosophical rationale" of the "Star Wars" strategy is the conviction that a thermonuclear war must take place.²⁶

Judging by all indications, the supporters of the "Star Wars" idea in the United States were pursuing three specific goals when they announced the program.

The first and most immediate goal is the following: With the aid of an emphasis on the "defensive" nature of the SDI, they hope (by temporarily muffling the sound of the military victory marches that frighten average Americans and the United States' allies) to preserve the very possibility of continuing the insane arms race.

This intention is clearly reflected, in particular, in remarks by the same N. Gingrich. He has said that if the nuclear arms race should continue to be conducted only on earth, "the world of the future will be a world of East-West deadlock.... This could continue for generations." In the opinion of Gingrich, this is unacceptable. But he also objects to open reliance on nuclear weapons. It is probable, he wrote, that the United States actually needs "chances to expand war" and the willingness to fight a "protracted nuclear war." But there is no need, in his opinion, to discuss this openly. This "borders on stupidity," because "semantics of this kind frighten the taxpayer."²⁷ This is why Gingrich and company saw the SDI as a chance to kill two birds with one stone: To continue the attempts to disrupt the military-strategic balance and to simultaneously camouflage them with "protective" coloring.

The second and so-called intermediate goal of the advocates of the "Star Wars" program is connected with the possibility of using it for aggression even during the first stage of deployment.

It would seem that the United States would have no way of making use of the SDI as long as it lacked complete protection against Soviet retaliation. However, in the opinion of two well-known critics of "Star Wars" in the United

States, former Secretary of Defense R. McNamara and Nobel prizewinning physicist H. Bethe, the SDI system will already have sinister potential as soon as its deployment begins: It could be used to weaken a retaliatory enemy strike after the delivery of a first strike. Of course, U.S. losses would still be colossal under these conditions, but we have already seen that the most adventurous American officials believe that the destruction of socialism would make the sacrifice of tens of millions of Americans on the altar of the god of nuclear war fully "acceptable."

In other words, the SDI could give rise to the Pentagon's most bloodthirsty plans even during the first stage of deployment.

The third goal of the "Star Wars" program is a long-range one. Washington officials believe that it could be attained if and when the SDI system is completed. The advocates of the SDI feel that it would give the United States two specific opportunities.

First of all, it would secure the ability to fight a brutal and protracted nuclear war with the Soviet Union under this "antimissile umbrella" until such time as American terms could be dictated to the USSR. This cheerful prospect is described in the most inspiring terms by the same C. Gray and C. Paine in the articles in which they portray themselves as born-again peacemakers. In fact, however, they return to their old themes: "An America protected against Soviet strategic strikes would be more willing to take the risk of escalating" nuclear war; in this kind of "protracted" war, the United States could choose "horizontal escalation"--that is, the spread of nuclear war to new territories--and rely on the entire industrial "potential of the West for military mobilization." In general, in Gray's words, in 1995-2005 the SDI would give the United States the following options: 1) "to destroy Soviet nuclear forces"; 2) "to command escalation"; 3) to acquire the potential of "defending the nation and mobilizing for victory in this sheltered nation."²⁸

Secondly, according to the plans of SDI advocates, the system itself could serve as an attack weapon and could be used to destroy targets on earth from space.

It is indicative that they are planning to extend the "defense" entailing the complete SDI system to the area directly above Soviet territory. This is supposed to be done allegedly to forestall a first strike by the Soviet side and to intercept Soviet missiles in flight. In fact, as THE NEW YORK TIMES admitted, the system of "strategic defense" would make it possible to "acquire a first-strike weapon, which would put enemy missiles out of commission before they could be launched."²⁹ Furthermore, the calculations of the American advocates of "Star Wars" indicate that any space-based platform designed for the destruction of missiles would be in orbit in the region allowing for this destruction only 5 percent of the time and would then unavoidably disappear over the horizon.³⁰ But this means that the real defensive potential of these platforms is only a fraction as great as their potential to serve as weapons in a premeditated first strike.

Therefore, the actual goals of the allegedly defensive "strategic initiative" are aggressive to the maximum. The SDI is a claim for decisive military-strategic superiority, so that the United States can try to wipe socialism off the face of the earth with nuclear weapons.

Calculations and Miscalculations

The apologists of "Star Wars" are in a hurry to use the program to blackmail the socialist countries. But only those with weak nerves would fall for this trick.

On the domestic political level, the expectation is that the American people will calmly accept this new mounting threat of thermonuclear war, a threat of unprecedented intensity, and Congress will be willing to give its blessing to any escalation of tension. From the standpoint of the present level of technology, the completion of the "Star Wars" program will require fundamentally new designs, and many of these lack even analytical validation. In the military context, even if the deployed SDI should prove effective against today's ballistic missiles, it would not solve the problem of protection against possible new systems or against bombers and cruise missiles.

The combination of these factors alone, not to mention the certainty that the Soviet Union will not take all of this lying down, means that the "Star Wars" strategy is, in the final analysis, an extremely adventuristic program from the standpoint of its feasibility as well. By gambling on its success, the United States is taking the risk of committing a colossal military-strategic mistake.

It is precisely with a view to this prospect that the United States has refrained from lifting all restrictions. For now, Washington is officially declaring its intention to observe the fundamental Soviet-American agreements restricting the strategic arms race, but only for now. This is happening because the decisionmakers across the ocean want to first weigh all of the possibilities and be certain that staking all of their winnings in the nuclear age will give them the trump card they need, and not bankrupt them. At the same time, despite all of these vacillations and torments, the fact that the American administration has already begun testing the "Star Wars" scenarios could make the new and extremely dangerous round of the arms race in outer space inevitable and irreversible. For the sake of continuing its reckless game, the U.S. administration has reserved the "right" to renounce Soviet-American agreements. To assure itself of a free hand, it is planning years of deadlock in the bilateral talks in Geneva on the entire group of nuclear and space weapons.

The Soviet Union, as its leadership has repeatedly announced, obviously cannot allow the United States to achieve military-strategic superiority. This would be particularly dangerous at this point in history, given the accumulation of huge nuclear arsenals and the openly aggressive nature of American military-strategic doctrines. The USSR has always caught up with the United States in the past, no matter what kinds of strategic arms it has developed to take the lead. The USSR is taking the appropriate countermeasures today and will

continue to take them in the future. But the escalation of the arms race to new and unrestrained heights was not our choice. Particularly since this will probably destabilize the overall strategic situation to the maximum.

The only way of avoiding this was and is the prevention of nuclear war through joint efforts, and not a search for ways of fighting it in the expectation of victory. The potential for this exists. Effective agreements must be hammered out to prevent the arms race in space and to stop it on earth, to limit and reduce nuclear weapons and to strengthen strategic stability. The USSR and the United States reached a preliminary agreement on this in January of this year, and it was supposed to serve as the point of departure for the bilateral comprehensive talks in Geneva.

The Soviet Union will not take the first step into outer space with weapons. If the United States gives up its provocative "Star Wars" plans, and if responsibility and common sense should triumph there, the task of preventing the arms race in space and stopping it on earth will be an attainable objective.

FOOTNOTES

1. THE WASHINGTON POST, 24 March 1983.
2. "National Security in the 1980's: From Weakness to Strength," San Francisco, 1980, pp 84, 86.
3. "Strategy and Nuclear Deterrence," edited by S. Miller, Princeton (N.J.), 1984, pp 37, 50.
4. Ibid., pp 53-55.
5. FOREIGN POLICY, Summer 1980, p 27.
6. "Strategy and Nuclear Deterrence," p 212.
7. Ibid., p 53.
8. V. I. Lenin, "Poln. sobr. soch." [Complete Collected Works], vol 30, p 85.
9. THE NEW YORK TIMES, 29 May 1985.
10. J. Stein, "From H-Bomb to Star Wars. The Politics of Strategic Decision Making," Lexington (Mass.), 1984, pp X, 91.
11. THE WASHINGTON POST, 19 April 1985.
12. ORBIS, Summer 1984, pp 215-240.
13. INTERNATIONAL SECURITY, Fall 1984, p 96.

14. HARPER'S MAGAZINE, June 1985, p 22.
15. PRAVDA, 8 April 1985.
16. THE NEW YORK TIMES, 8 June 1984.
17. "Strategy and Nuclear Deterrence," p 143.
18. THE WASHINGTON POST, 3 January 1985.
19. Quoted in: R. Schulzinger, "The Wise Men of Foreign Affairs," N.Y., 1984, p 152.
20. Ibid., p 153.
21. "Strategy and Nuclear Deterrence," pp 154, 166.
22. H. Kissinger, "Years of Upheaval," Boston, 1982, pp 258, 999.
23. "U.S.-Soviet Relations: A Strategy for the 80's," N.Y., 1981, p 14.
24. "Strategy and Nuclear Deterrence," p 16.
25. "Future 21. Directions for America in the 21st Century," edited by P. Weyrich and C. Marshner, Greenwich (Conn.), 1984, p 66.
26. "Strategy and Nuclear Deterrence," p 191.
27. "Strategic Responses to Conflict in the 1980's," edited by W. Taylor, Jr., S. Maaranen and G. Gong, Lexington (Mass.), 1984, pp 4-5.
28. ORBIS, Summer 1984, pp 223-224, 232.
29. THE NEW YORK TIMES, 7 March 1985.
30. INTERNATIONAL SECURITY, Fall 1984, pp 69-71.

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COMPARATIVE ANALYSIS OF AMERICAN, JAPANESE MANAGEMENT STYLES

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[Article by L. I. Yevenko]

[Text] The so-called "Japanese challenge" is a new feature of the development of the theory and practice of capitalist production management in the late 1970's and early 1980's. It consists in the West's acknowledgement of definite superior features in the administration of production in present-day Japan, particularly in comparison to American management, which has unconditionally set the styles of management for many decades.

The great interest in Japanese methods of managing and stimulating scientific and technical progress was aroused primarily by Japan's steady high indicators of economic development in comparison to other leading capitalist countries. In 1973-1977, for example, the average annual real growth rate of the gross national product in this country was 4.1 percent, and it was only 2.9 percent in the United States, 1.9 percent in Great Britain and 2.3 percent in the FRG. Only Canada displayed the same rates of economic growth as Japan during this period. An even greater gap came into being in 1978-1982: Japan's average GNP growth rate was 4.5 percent, whereas the figure was 1.6 percent in the United States, the FRG and Canada and 1 percent in Great Britain.¹

For a long time, Japan had the highest growth rates of labor productivity among the developed capitalist countries, although it is still lagging behind the United States, FRG and France in terms of its general level. It is quickly narrowing this gap, however. The accumulation norm in Japan has been the highest for many years--around 30 percent of national income (in the United States and Great Britain it is just about half as high, and in the FRG, France and Canada it is two-thirds as high). The interest rate on loans in the last 10 years has been 6 percent on the average with periodic vacillations of around 1.5 percent in either direction in some years, whereas the figure did not fall below 11 percent in the United States between 1978 and 1984. Japan's rate of unemployment is from one-third to one-fifth as high as the rate in other developed capitalist countries; it has a positive balance of foreign trade (33.5 billion dollars in 1984)² and the products of many of its industries are highly competitive in the world market.

Nevertheless, Japan is still lagging far behind the United States in terms of overall economic, scientific and technical potential, comprehensive economic development and production efficiency. The Japanese economy has its own serious problems: strong dependence on imported energy, raw materials and foodstuffs, several underdeveloped branches of industry and, in particular, services, an inadequate supply of housing for the population, etc. Furthermore, even the sphere of administration in the U.S. economy far surpasses the Japanese sphere in terms of invested capital, number of employees, material and technical equipment, level of administrative R & D and scales of administrative training and advanced training.

It is significant that the factor of administration plays an important independent role in the manifestation of the economic laws of capitalism and can strengthen or weaken various negative processes to a considerable extent. In the American economy of the last decade, administration has played the role of a catalyst on the government and corporate levels in the intensification of the devastating effects of mounting capitalist contradictions. The Japanese ruling class, on the other hand, uses its leverage to achieve definite positive results in the stimulation of economic development and the reinforcement of Japan's status in the world. The specific management practices and theories making up the "Japanese style" of administration play far from the least significant role in this process. A comparison of the distinctive features of this style to the American one is of considerable interest.

Intraorganizational Strategies and Systems of Management

An understanding of the systems of intraorganizational management in Japan and their comparison to American practices necessitate a consideration of the differences in the overall economic and sociocultural conditions of the development of capitalism in these countries.

From the end of the war to the 1970's, American business derived benefits from the "effortless American superiority" (to use L. Thurow's words) in the sphere of economic, scientific and technical development, the use of cheap raw materials and energy resources, the presence of a skilled labor force, financial prosperity and a monopoly on many goods, particularly the technically complex ones, in the world market, not to mention the domestic market. In contrast to this, after World War II, Japan was even more inclined than in earlier stages of the "crusade for industrialization" to fight a constant struggle for its economic survival and try to reduce the gap between it and the leading capitalist powers.

The idea that a country located on a small territory (in terms of area, Japan is approximately equivalent to the state of California) and totally dependent on imports of many resources, manufactured goods, foodstuffs and consumer goods can survive and strengthen its position in the world only through effective production, persistent labor and concerted action by the government and the private business sector is firmly entrenched in the national mentality of the Japanese--from presidents of companies to schoolchildren. The Japanese are well aware that intensive economic development, an emphasis on scientific and technical progress, the strict conservation of resources and the augmentation of labor productivity and intensity constitute their only

way of catching up with other countries and getting ahead of them. This has led to the planning of appropriate strategies, forms and methods of economic management and stereotypical thinking on the part of managers and specialists and on the part of rank-and-file workers. The spread of definite conformity in economic thinking and behavior, cultivated by Japanese ruling circles (government and monopolist), was promoted to a considerable extent by the cultural traditions stemming from the vertical (previously class-based) construction of Japanese society, the developed sense of submission to authority and the relatively low social mobility of the population. Other contributing factors were the ethnic and cultural homogeneity of the Japanese and their centuries-old inclination toward conformity, the avoidance of conflict, individual self-restraint and group unity.

Certain specific features of the Japanese economic order are even more important. The structure of financial capital is distinguished by the presence of a few powerful monopolist groups, headed by giant banks, and is marked by the closely interwoven interests of the firms making up these groups. Whereas the interests of individual investors in the United States are the direct guiding force of all the activity of the top leadership of the majority of corporations, individual investors in 97 percent of Japan's largest corporations registered on the Tokyo stock exchange own less than one-tenth of the capital, with nine-tenths owned by organizations. The mutual possession of one another's stock packages is widely practiced, and there is a high percentage (up to 80 percent) of borrowed funds in production investments (in American firms it generally does not exceed 40 percent). For this reason, the Japanese private capitalist sector is more controllable.

All of the operations and administration of Japanese firms are strongly influenced by the system of subcontracts--long-term economic ties between a large head firm and many small and medium-sized enterprises, with the aid of which the monopolies, on the one hand, establish control over a broad group of enterprises in related industries and blatantly exploit them in their own interests and, on the other, help them maintain the level of quality and material costs needed for the competitive potential of the final product. At the end of the 1970's, over 60 percent of all the firms in the processing industry participated in the subcontracting system, and the figure was 48.4 percent even in the case of firms with from 200 to 299 employees; 22 percent of the subcontractors used the trademark of the head firm.³ Relations between head firms and subcontractors are based on economic interests and are exercised under the conditions of fierce competition for orders, the production of competitive goods, etc. But the spirit of mutual obligation, characteristic of the traditional Japanese group mentality, is also part of these relations, as is the practice of rendering technical and other assistance within economically expedient bounds. It is significant that Japanese big capital has strong leverage in another area of national production, influencing the engineering and conduct of the government's "industrial policy."

Western authors often describe Japanese monopolies as "incorporated," or dependent on the government, representing the interests of Japanese capitalism. In fact, their economic dependence, and even their direct administrative-legal dependence, on the state is not so great, but the very process of making government "industrial policy" and economic projections of a non-binding

nature is based on complex economic and political interaction, and many of its aspects can take place only under the conditions typical of Japan. For example, collective bodies are used widely for the elaboration of proposals and counterplans regarding various aspects of "industrial policy." The Ministry of International Trade and Industry, for example, has councils on the industrial structure, industrial technology, policy on small business and others, which are made up of representatives of the government, monopolies, the scientific community, regional authorities and trade unions. In addition to this institutionalized form of coordination, there is the colossally important covert influence of the giant banks and the monopolies, reinforced by their economic strength, informal ties with government employees or simple bribery or other forms of "encouragement." In turn, the government uses direct and indirect methods in conjunction with the monopolies to motivate firm managers to "voluntarily" accept the major premises of indicative plans.

It must be said, however, that market competition is the main factor on which corporate interests and the guidelines of government "industrial policy" depend. "A business which cannot pay for itself must die!"--this principle, formulated by the patriarch of Japanese business, K. Matsushita, the founder of Matsushita Electric, one of the largest electronics firms in the world, defines the attitude of Japanese managers. Judging by the number of bankruptcies in the Japanese economy, competition here is more intense than in the American economy. Only a few of the hundreds of firms once striving for a foothold in the production of new machine-building products are still in existence: Only 7 remain, for example, in the production of cameras, only 10 are still producing calculators and only 5 are producing motorcycles.⁴

Intraorganizational management in Japanese industry is distinguished by a specific approach to indicators of economic performance. Japanese business leaders prefer to view the capitalist firm's inherent goal of securing a profit and increasing income over the long range. The main thing is the reinforcement of the firm's competitive position, and not the maximization of monetary income, which is characteristic of the majority of American corporations. For this reason, the main indicators in Japanese firms are sales volume and market share, and not financial assets at the end of the year or quarter. As a result, special importance is attached to the quality of the product, its customer appeal and the reduction of overhead costs and the price of the product, as these are precisely the factors with a decisive effect on competition.

This is due to a group of different reasons, including the primarily export-oriented nature of many leading Japanese firms,⁵ which have had to initially give up part of their income for the sake of enhancing the competitive potential of their products. The Toyota automobile firms, for example, made almost no money during the first 8 years of their sales in the American market, but now they are virtually above competition. Toyota's profits today are so great that it can conduct business affairs independently, without resorting to bank loans, and this is not typical of the Japanese firm.

Besides this, economic intraorganizational mechanisms in Japanese industry stimulate a long-range approach to market competition. In America up to

25 percent of the firms are guided by the 3-year standard investment recoupment period, but in Japan recoupment takes at least 5 years.

Another important aspect is the difference between systems for the compensation of top executives. The monetary income of the president of a large American company is around three times as high on the average as the income of the president of a Japanese firm, with two-thirds consisting of bonuses, preferential stock purchases and options offered to the executive by a decision of the board of directors, commensurate with the dividends on corporate stock. The system for the monetary compensation of Japanese executives is not as dynamic, but in contrast to American businessmen they have many of their needs covered by the firm in addition to receiving financial compensation (free housing, automobiles, large expense accounts, personal service allowances, etc.). For this reason, the maintenance and consolidation of his general status and reputation as a capable and farsighted manager are often more important to the Japanese top executive than the attainment of good results in a few indicators of the annual financial report. This gives him greater freedom, particularly in the planning of long-range economic strategy.

The intensification of production is being emphasized in the investment policy of the majority of Japanese firms. For example, the investments of Japanese firms just in production and labor efficiency (excluding expenditures on the enlargement of capacities or remodeling) rose from 22 percent of total investments to 43.1 percent between 1970 and 1980, and proportional R & D projects for the development of labor-, energy- and material-saving technology rose from 24 percent to 44 percent during the same period.⁶ A significant difference between Japanese and American firms can be found in the ratio of engineers to workers. For example, whereas there is one engineer for every eight production at Western Electric, the ratio is 1:4 or 1:3 in comparable Japanese electrical equipment firms, and the number of engineers is equal to the number of production workers in departments engaged in computer production.⁷ Furthermore, the Japanese prefer to locate their engineering and technical personnel and even their research staffs directly in plants to secure effective communication and close cooperation between scientific and technical departments and production (for example, this applies to 63 percent of the Hitachi firm's researchers and up to 90 percent of the Nippon Electric company's researchers).⁸ Up to 40 percent of the equipment installed in Japanese firms is improved by the firms themselves. Furthermore, the participants in this process are not only designers and technologists, but also the operators who will have to work with the equipment and even repair it in some cases.

Another distinctive feature of the Japanese system of management is the maximal stimulation of the enhancement of quality and productivity. Workers are given incentives to produce defect-free products, the incentives of foremen depend on the level of substandard production and unavoidable losses as a result of defects, and the incentives of plant managers depend on total expenditures on the guarantee of quality in production and the number of defects discovered during the inspection and maintenance of sold products. Studies have shown that Japanese firms put more money and effort than American firms into each stage of quality control, but their total expenditures on the prevention of defects in production, on the inspection of products and on their testing and

their losses from substandard products are only half as high or less than half as high as just the losses from substandard products in American firms.⁹ This is one of the main reasons for the higher competitive potential of the products of Japanese firms.

The main lesson Americans have learned from comparisons of their economic practices to Japanese ones is that much more attention must be paid to the lowest production link--the shop--and that efforts to enhance efficiency must be concentrated primarily in the improvement of equipment, technology and organization and the efficient management of production itself. Many American companies, however, are still trying to improve their economic position by means of more flexible and effective responses to outside events: more skillful marketing and the better management of finances and "order portfolios," mergers and takeovers, etc.

Japanese firms do not use any specific managerial structures unknown in American and world practice. The Japanese make extensive use of the principle of commercially autonomous production divisions--that is, the divisional structure of organizational management, to which large American corporations transferred en masse in the 1960's and 1970's (Matsushita was the pioneer in instituting this system in Japan back in 1933, and General Motors had been using it in the United States since 1922). In Japanese firms, however, the level of divisional autonomy is much lower, and the role of functional (technical, economic, planning, sales and others) offices in headquarters is therefore much greater. In American firms, each division is usually assigned only the basic financial indicators of performance and budgets for production, sales and R & D, which can be adjusted during the year. The division of a Japanese firm has a plan for sales volume, profits and output in natural terms and an officially approved work schedule and list of suppliers. The sales network is generally corporatewide, although each division maintains contact with the network in line with the specific nature of its product. The officially approved annual plan, which stipulates production and sales operations and is rarely revised, is of decisive importance. The divisions also have approved intraorganizational 3-year plans, pertaining mainly to investment policy and the incorporation of new equipment, as well as long-range plans for the next 10 or 15 years. They are constructed in line with the principles of cumulative planning. It is important to consider the specific nature of the Japanese system of drafting plans, which are not imposed from above and are drawn up not in headquarters, but mainly in the divisions themselves. The process of planning is decentralized and the plans are therefore sufficiently flexible and commensurate with the interests and capabilities of the production units.

So-called "strategic administrative centers" have also been used in Japan in recent years (the system was first instituted in 1972 by General Electric, and in Japan its most consistent adherent is the Sony firm). In this case, a special program is drawn up for each product, especially a new product, for its advancement in the market. It is financed on a budgetary basis, and not a purely commercial one. This reduces the importance of the self-funding criterion for each division and each product, because they can even be unprofitable at some stage if this strategy is justified by the long-range

goal of winning a place in the market. In line with this, resources can be redistributed among "strategic administrative centers."

In general, the Americans have gone further than the Japanese in processes of decentralization and often establish many small autonomous divisions, expecting them to be self-funding, cultivating the "entrepreneurial spirit" in this manner and minimizing the number of indicators planned in firm headquarters, but resolutely redistributing profits among divisions with a specific goal in mind. The headquarters of Japanese corporations rely more on administrative methods of management, but the economic guarantees they offer to their divisions are stronger than in American practice. For example, in the Matsushita firm, 40 percent of the profits earned by divisions can be used at the discretion of their managers (the headquarters is obligated to transfer these funds to the division from the corporate account within 2 weeks upon request). In addition, the division can request capital from headquarters only at a rate of interest, set by the board of directors, 2 points above the prime rate of commercial banks. These measures are supposed to combine economic autonomy with heightened responsibility for the careful use of allocated funds.

The matrix structure of management, based on formal mechanisms of double executive jurisdiction on the vertical and horizontal scales, a structure which became quite popular in the United States in the 1970's, has not been used widely in Japan. The structure of Japanese firms is strictly hierarchical, the authority of top executives is incontestable, and decisions are unconditional and compulsory for all. In fact, however, the Japanese organizational systems have many of the advantages characteristic of the matrix structure of management: flexibility, adaptability, the use of informal horizontal and diagonal relationships, etc.

"No one should take the responsibility for decisions"--this "principle" sounds quite odd and is fundamentally contrary to the rudiments of the Western science of administration, which insists on an absolute authority and on a "balance of power and responsibility." But it was declared by the "boss of bosses," I. Izoda, the current president of the Sumitomo Bank and a man with tremendous personal power,¹⁰ and reflects the specific nature of the traditional Japanese system of making important decisions, in which managers do not take the risk of relying only on their own experience and knowledge and strive to coordinate decisions with all interested parties and pay attention to the opinions of even their lowest-ranking colleagues (this is often done with the aid of "rings"--the stamping of documents stating the essence of the problem and its solutions by many individuals--and also by means of private coordinating conferences and other methods). In the opinion of Western experts, the Japanese are inclined to "exaggerate" their problems. If they consider them to be important, they make decisions on them quite slowly, but more carefully and only after thorough deliberation, and thereby establish the prerequisites for the correct interpretation and subsequent execution of the decision during the early stage of the process. Furthermore, the decisionmaking process pursues another characteristically Japanese goal--it aids in the training, development and education of personnel in the necessary manner.

It is also significant that the use of job descriptions is deliberately avoided in Japanese firms. The duties of each individual are defined in vague terms and can change in response to changing objectives. A subordinate can temporarily take a more responsible position than his superior, and top executives can bypass superiors in communicating with their subordinates without violating the chain of command (this is generally forbidden in American practice). The formation of various special teams to solve specific problems is widely practiced in Japanese firms. The teams consist of representatives of all subdivisions capable of influencing the situation. An open floor plan is characteristic of the offices of Japanese firms and establishments. The executives of a subdivision (up to the vice president of the firm) and their subordinates sit in the same large room, with no partitions separating them from one another, and sometimes move their desks closer together during the performance of joint projects.

In general, Japanese management is distinguished by autocracy, but in a non-authoritarian form--that is, top executives with a great deal of power do not try to take everything upon themselves and view their subordinates not simply as the people who carry out their decisions, but also as active participants in the decisionmaking process. Japanese bureaucratism is often stronger than the American variety, but it is based more on organizational rituals than on excessive "paperwork" and attempts to regulate all aspects of organizational activity.

Personnel Management

Analyses of Japanese managerial experience often stress the fact that the Japanese manager considers the administration of people to be his main function, whereas the American sees his main function as the administration of assets, which should secure income on capital. In line with this, Americans have formulated the extremely pragmatic theory of the use of "human capital" or the administration of "human resources," within the context of which the individual is frankly acknowledged to be one of the resources for the attainment of corporate goals. Consequently, he must be treated with care, must be given thorough consideration and support and must be thoroughly developed, but only within the guidelines of a clear criterion of capitalist production: Any "investments" in the individual (wages, social security or advanced training) must ultimately be recouped in higher profits. This actually justifies a freeze on wages or wage reductions and the dismissal of superfluous workers "in the interests of the firm."

Japanese practices are based on another set of initial premises of personnel management, according to which the object of management is not only the production process, but also the individual, viewed as an independent and valuable entity, and not simply as one of the firm's resources. Furthermore, personnel management combines the features of a specifically organized system and a definite "corporate philosophy" and "organizational culture," having an extremely strong effect on the behavior of people on the job. Despite the fair amount of social demagoguery and embellishment of reality in descriptions of specific aspects of the Japanese experience in personnel management, and despite the failure of bourgeois authors to analyze their

class essence, this phenomenon is quite important for an understanding of the success of Japanese firms. "Writing the corporate philosophy in Japan off as an irrelevant ornament," writes G. Gregory, renowned specialist in the field of comparative international management studies, "would be a serious mistake, although it is often justified in studies of other countries, and would lead to misunderstandings about Japanese enterprise and its system."¹¹ When we analyze this experience, we must always remember that the subject is not only Japanese management, but also the management of Japanese.

In their attempts to single out some of the features of the Japanese "system" of personnel management, both Western and Japanese authors actually describe some kind of "exemplary model," which, it must be said, is not used in all organizations, does not apply to all personnel and is certainly not practiced in the ideal form.

The model is based primarily on the assumption that the worker is regarded not as a hireling, but as a member of the organization, and that the organization itself is not regarded simply as the total sum of the resources it uses, but as some kind of social entity, something similar to a family, as Japanese business leaders love to say.

According to these authors, this approach is closely related to two main factors: lifetime hiring--that is, the guarantee of employment to the worker included in the permanent staff for his entire career; the principle of seniority--the use of age and length of service as criteria for salary increases and promotions.

Therefore, whereas the main problem of American workers and employees is the threat of unemployment and insecurity, people who have a permanent job in a solid Japanese firm usually do not have this problem. Unemployment is unavoidable in the capitalist society, but in Japanese firms the guarantee of employment for the nucleus of permanent male workers (in the event of a production slump, automation, etc.) is accomplished primarily by regulating the number of seasonal and temporary workers and women workers. Even when a permanent worker is incompetent in his job, he can only be transferred to another job without any loss in pay. "Achieving extraordinary results with ordinary people!" and "Blaming unpremeditated errors on flaws in training"--these popular principles of personnel management in Japanese organizations are nevertheless combined with the merciless punishment of people who are disloyal to the firm and commit deliberate abuses of power or acts of dishonesty.

This approach establishes certain sociopsychological prerequisites for the closer identification of the Japanese worker's personal interests with the interests of the organization and for his quicker and more thorough adaptation to social life at the enterprise. This is a voluntary and a compulsory process.

Under the conditions of lifetime hiring, the significance of the recruitment of personnel for the firm is enhanced dramatically. The basic principle is not the hiring of the most suitable applicant for a vacancy (by means of competitive examinations, employment screening tests or evaluations of intelligence, skills and personal qualities in special "evaluation centers"), as in

the United States, but the recruitment of young college or high school graduates with good potential for the development of their knowledge and skills in the future. The strategy of personnel training also changes. Whereas American firms rely considerably on the broad network of universities, colleges, business schools and other outside academic centers, Japanese firms usually take almost all of the responsibility for turning a new employee into a good specialist or skilled worker. Under the conditions of lifetime hiring, it is economically expedient to spend up to half a year teaching the worker his new occupation and related occupations. The principle of "on-the-job training" is used widely--that is, primarily through the acquisition of occupational experience and self-training.

In many machine-building plants, the college engineering graduate must work for at least 3 months on the assembly line and for around half a year as a rank-and-file employee in various links of the product sales and maintenance network before he assumes his official position. The principle of "rotation" is used more widely in Japan than in the United States--regular (usually every 2 or 3 years) transfers to jobs in various departments (design, technological, economic and sales), especially for promising employees under the age of 35 who are being considered for promotions to managerial positions. (In the leading electronics firms, for example, 5 percent of the workers and the same percentage of employees must move from one of the firm's plants to another each year.)

The principle of "seniority" in the wage and promotion policy of Japanese firms is the counterpart of the "merit principle" in American companies and government agencies. In accordance with the latter, wage scales, bonuses and promotions should not depend on the age or sex of workers, but only on the actual results of their work. The differences in the wages and bonuses of workers in the same jobs are quite sizeable in this case, and the central link of all personnel management is the annual evaluation of individual performance and the rating of workers on the basis of precise "formal" criteria and an established procedure.

In contrast to this, the wages of Japanese workers rise almost automatically in line with seniority. For example, in the science-intensive sectors of Japanese machine building, the annual increase in wages is around 4 percent on the average, whereas the figure is 1.6 percent in the United States.¹² But the general level of wages is still higher in the United States than in Japan, although the gap has been dramatically reduced.

If the financial status of the Japanese firm permits, bonuses are paid to all permanent workers twice a year (in the amount of around 2 or 3 months' wages each time). Marriage or the birth of a child is the occasion for a substantial salary increase (of 20-25 percent). Payments and benefits from social funds constitute a sizeable addition to wages in large prospering firms (payments into pension funds, medical insurance, partial or complete payment for housing, transportation to work in plant vehicles and accommodations in the firm's health resorts and vacation centers). None of this is typical of American firms or, for that matter, of smaller Japanese firms.

In accordance with the "exemplary model" of organizational relations, the mentality of Japanese workers is thought to be distinguished by a strong sense of responsibility, a willingness to cooperate, unpretentious behavior, the fear of "losing face" and the desire and ability to constantly learn something new and to institute more efficient ways of doing things by participating in clubs for the promotion of quality, defect-free production and higher productivity.¹³ They have a strong desire to take every opportunity to demonstrate their loyalty to the firm and its administration. The majority of employees, for example, come back to work from vacation a week early, and many work Saturdays (this is sometimes compulsory) and evenings when necessary. Any instructions, whether related or unrelated to the workers' professional duties, are carried out without question, and the workers do not expect immediate financial or moral rewards for a job well done. They strive to always make a good impression on executives and on the group in the hope of fair compensation in some form in the future.

In general, it can be said that the Japanese model of personnel management is designed to secure personnel stability and views the group, and not the individual, as the primary link and main object of management. In contrast to this, the typical American system of social-personnel relations encourages individualism, dynamism and competition and is more likely to exacerbate conflicts between the administration and rank-and-file blue- and white-collar workers.

The openly paternalistic nature of the Japanese model of labor relations, evident in its declared philosophy and internal essence, is pointed up by a look at these differences in retrospect. In the history of capitalism in Western Europe and America, paternalism is a well-known way of subordinating labor to the interests of capital. It was already being analyzed in the early works of F. Engels and was widely practiced from the 1920's through the 1940's at the plants of H. Ford I.

The intensive migration of manpower from rural areas during the period of Japan's industrialization helped to establish a good basis for the transfer of some types of relations characteristic of the patriarchal family and the rural community to industrial organizations. The same tendency was promoted by some other features of the Japanese traditional public mentality discussed above.

In the United States, paternalism in management was already losing its popularity in the 1940's, largely as a result of the struggle of the organized working class, which revealed its antilabor, reactionary essence. In post-war Japan the conditions for the maintenance of these paternalistic practices were more favorable, and in the 1970's the personnel management systems based on them began to be portrayed by many bourgeois authors, both Japanese and Western, as something just short of the main reason for the high competitive potential and effectiveness of large Japanese corporations. In this process, however, theories and even descriptions of reality were largely an embellishment of the facts.

In the first place, the Japanese model of personnel management described above is not accepted throughout the economy. According to various estimates,

it extends to 22-30 percent of the entire labor force, primarily in large corporations, government agencies and banks.¹⁴ Even there, however, it extends only to the privileged workers--men on the permanent staff. Women, who usually leave their permanent jobs before the age of 32 to take care of family obligations and who earn no more than two-thirds as much as men of the same age, seasonal workers and temporary workers constitute the part of the labor force subjected to greater exploitation and discrimination and display less loyalty to their organizations. For example, a recent comparison of some Japanese electronics firms to the American Western Electric Company showed that up to 17-24 percent of all new women workers leave the Japanese firms within the first year or year and a half and that the figure is only 8 percent for men, while the figure for men and women is the same in the American firm and represents 10-12 percent of all new workers.¹⁵

Even quality clubs--this symbol of participation by Japanese workers in the improvement of conditions in firms--are joined by only 12.5 percent of all Japanese workers.¹⁶ They are unevenly distributed (the Hitachi firm alone accounted for one-sixth of all the proposals made by all quality clubs in the processing industry in 1981) and are often instituted by means of coercion. In the opinion of Japanese executives, no more than one-third of these clubs have any real impact even at leading enterprises.

In the second place, even within the framework of the abovementioned "exemplary" model of personnel relations, the situation is often not as idyllic as it seems. According to the apt observation of one American researcher, "if this is a family, then it has its poor relations." Japanese journalist S. Kamata, who went to work temporarily at a Toyota plant to conduct an experiment, provided a vivid description of the exceptionally brutal way in which the personality of the individual is stifled there by the personnel management system,¹⁷ and this is quite characteristic of the paternalistic tradition. The rate of suicide is 1.5 times as high in Japan as in the United States. Top-level Japanese managers often display an autocratic style of administration literally bordering on tyranny.¹⁸

Many of the attributes of Japanese organizational practices--the compulsory ritual of singing the corporate anthem each day, the interference of firm managers in the personal lives of workers, the compulsory rotation of personnel and the limitation of voluntary occupational mobility--are seen as infringements of personal freedom and are fundamentally unacceptable in contrast to common Western values.

In the third place, the future of "exemplary" personnel systems is not as cloudless as it seems. A gradual process of "Westernization" is taking place in Japanese society--some people, especially the young, are adopting characteristically Western patterns of thinking and behavior. This is giving rise to a more individualistic frame of mind, and this is not always consistent with the traditional requirements of Japanese organizations. For example, some executives already prefer to make use of all of their vacation time and are reluctant to work beyond their scheduled hours without overtime pay. There is much greater interest in private businesses, however small, and in large firms there is more interest in "Americanized" performance evaluation and rating systems, particularly among young engineers in the new science-intensive sectors of production. The managers of some firms in electronics

and precision machine building now feel that the principle of seniority is an inefficient criterion for managerial appointments in fundamentally new fields of equipment manufacture and technology, because the ability to effectively learn something new declines sharply after the age of 35. Some highly qualified specialists are changing jobs and giving up their seniority in firms for the sake of greater job satisfaction and for reasons having to do with career or salary considerations.

These trends, however, have been intermittent and contradictory. In general, the basic principles of the Japanese model of personnel management are still dominant in the minds of Japanese administrators, workers and employees. As a result of the relatively stable economic development of recent years and the extremely positive evaluations of the Japanese experience in management by several American, English and other specialists, the positive attitude toward these principles, according to some surveys, is even growing somewhat stronger.

Objective data testify that Japanese systems of intraorganizational administration, including personnel management, are sufficiently effective for the attainment of the goals of capitalist firms and government agencies, despite the intensification of their exploitative essence in some cases.

On the Use of Japanese Experience in the United States

Over the last decade Americans have made a great effort to learn more about the essence of Japanese administrative methods and to use elements of their experience at their own enterprises. According to a recent statement in FORTUNE magazine, "the great American experiment in the adoption of Japanese methods, some of which were originally adopted from the United States, is continuing."¹⁹ Indeed, even Japanese specialists have admitted that their firms have been persistently adopting American principles of production organization and financial control and American approaches to the development of organizational structures and information systems, not to mention production technology, since the 1950's and 1960's. Even the best-known Japanese administrative innovations--quality clubs and the system of "on-demand" deliveries, eliminating the need for reserve stocks and interoperational inventory--first made their appearance in the United States but were not widely used there. American methods of managing human resources, however, have not been popular at all in Japan.

The current process of the American examination and adoption of foreign managerial experience is quite complex and is also having a strong effect on the American theory and practice of management.

Many businessmen were convinced that the Japanese style of management was too closely related to the economic and cultural peculiarities of this country to be adopted. But this opinion was changed radically by the experience of some branches of American firms in the United States and of mixed enterprises, especially the television plant of the Motorola firm. It was acquired by the Matsushita firm in 1974 when it was operating at a loss and became a highly profitable enterprise in less than 4 years under Japanese management and with American manpower by reducing overhead costs considerably and by

reducing the number of defects in television sets to one-fourteenth of the previous figure.

It turned out that there were several methods of organizational management overseas that could be used by American firms. For example, although General Motors could not completely eliminate reserve stocks of raw materials, semi-manufactured goods and components with the use of Toyota's "kanban" ("on-demand") system, it has reduced the level of these stocks by 17 percent since 1981, and the Kawasaki Motorcycle enterprise in Nebraska reduced stocks by 14 percent in just a year.²⁰ Lockheed Aircraft reported a 3 million dollar savings as a result of the institution of quality clubs just during the first 2.5 years of their existence. General Electric failed twice--in 1977 and 1979--in its efforts to organize these clubs, but it now has around 1,000 in its plants. They are functioning quite successfully at Hewlett-Packard, Martin Marietta, Honeywell, Minnesota Mining and Manufacturing and other corporations, and around 2,000 American companies were members of the International Association of Quality Clubs in 1984. Managers of American firms are now seriously considering a higher ratio of engineers to workers in their plants and the augmentation of the role of production foremen. In recent years they have paid much more attention to the improvement of daily production control, the organization of planned preventive maintenance, inventory control and the introduction of special programs for the augmentation of labor productivity and the conservation of resources.

The use of Japanese managerial innovations, however, has been inhibited by several significant factors. The organization of supply operations, contracted delivery deadlines, the peculiarities of loading and unloading docks and equipment at existing automobile plants and even snowdrifts on highways in some parts of the United States preclude the complete institution of the "on-demand" delivery system. The American practice of classifying workers according to occupations does not allow them to be trained and used in a broad group of related occupations, as the workers of Japanese enterprises are.

American specialists have suggested various ways of surmounting these difficulties, from appeals for "management with the aid of simple human methods"²¹ to the elaboration of various detailed "theories." One of the most newsworthy, "Theory Z," proposed in a book by Stanford University Professor W. Ouchi,²² was based on appeals for long-term hiring practices in American firms, a personnel policy based on less individualized performance evaluations and slower professional advancement, the use of a percentage of corporate profits to satisfy the social needs of workers, the extension of firm influence to the families of workers, etc. This "theory," however, won no support in American scientific and business groups and was even pointedly criticized as a "dangerous folly" and a "utopia over the horizon."²³

American managerial thinking today is distinguished by severe disillusionment with the traditional theories of "efficiency experts," stemming from "Taylorism" and "behavioral theory" and based on the "dogma of human relations." Even the more updated concepts of the "school of social systems" (the theory of decisionmaking, the situational approach, etc.) are losing their appeal because it has been learned that their theoretical methods cannot explain why

systems of management in Japanese firms are not constructed otherwise, and why the departure from American principles of "scientific management" is enhancing, and not decreasing, the effectiveness of enterprise administration. Many theories of scientific management which were popular not long ago now seem too abstract, limited and lacking in vitality. The current stage in the development of bourgeois management theory in the United States is once again distinguished by the thorough study of American and foreign managerial experience, harking back to the ideas of the "empirical school." This tendency should be regarded as another sign of the crisis of management in the private capitalist economy of the United States in the late 1970's and early 1980's.

In general, however, the comparison of Japanese and American styles of management and the study of the use of Japanese experience in the United States are quite educative. They prove that the correct choice of economic strategies and the introduction of carefully considered and comprehensive but simple methods of organizing production and management are of great value at a time of intensive economic development. Besides this, the exceptional importance of socioeconomic and sociocultural factors, extending beyond the confines of economic organizations, the internal complexity of actual developments in the sphere of management and, in particular, the complexity of worker motivation is now especially evident.

The distinctive features of capitalist production relations have a great effect on the forms and methods of production management in the United States and in Japan. An analysis of their organizational and technical aspects, however, indicates a persistent search in recent years for ways of adapting managerial systems to the present requirements of production and of scientific and technical progress, and Japanese practices are making a substantial contribution to this and warrant thorough but discerning analysis.

FOOTNOTES

1. "Japan 1984. An International Comparison," Tokyo, 1984, p 11.
2. "The Japanese Economy and the Microelectronics Revolution," Prepared by Hisao Kanamori and His JERC Forecasting Associates, Tokyo, 1985, pp 56-57.
3. KEIO BUSINESS REVIEW, 1983, No 1, pp 4-6.
4. T. Mikami, "Management and Productivity Improvement in Japan," Tokyo, 1982, p 19.
5. For example, exports account for 66 percent of Sony's output, 69 percent of Honda's, 55 percent of Nissan's, 46 percent of Toyota's, 34 percent of Matsushita's, etc. American monopolies have a much lower percentage of sales abroad ("Japan 1984. An International Comparison," p 44).
6. T. Mikami, Op. cit., pp 25, 35.

7. HARVARD BUSINESS REVIEW, July-August 1984, p 122.
8. G. Gregory, "The Logic of Japanese Enterprise," Business Series No 92, Tokyo, 1982, p 33.
9. HARVARD BUSINESS REVIEW, September-October 1983, p 66.
10. FORTUNE, 8 January 1985, p 15.
11. G. Gregory, Op. cit., p 21.
12. RESEARCH IN LABOR ECONOMICS, 1983, suppl 2, p 253.
13. In the processing industry, 69.3 percent of the workers were members of these clubs in 1981, and they submitted 23.5 million proposals, 72 percent of which were adopted. The majority of proposals were efficiency suggestions, were connected with individual work and pertained to the improvement of work methods (34 percent), resource conservation (13 percent), working conditions (11 percent) and other aspects of work (HITO-TO-KEIEI, Japan Human Relations Association, September 1981).
14. J. Ellenberger, "Japanese Management: Myth or Magic," AFL-CIO/AMERICAN FEDERATIONIST, April-June 1982, p 6.
15. HARVARD BUSINESS REVIEW, July-August 1984, p 120.
16. J. Ellenberger, Op. cit., p 8.
17. S. Kamata, "Japan in the Passing Lane," N.Y., 1982.
18. FORTUNE, 7 January 1985, pp 14-24.
19. Ibid., 2 April 1984, p 10.
20. ORGANIZATIONAL DYNAMICS, Autumn 1984, p 24.
21. J. Balloun, "Japan and the Excellent Organization," MANAGERIAL PLANNING, May-June 1982, p 15.
22. W. Ouchi, "Theory Z. How American Business Can Meet the Japanese Challenge," Reading (Mass.), 1981.
23. FORTUNE, 17 May 1984, p 49.

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'INCREASING INTERVENTION' OF REAGAN ADMINISTRATION HIT

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[Article by N. S. Beglova and V. A. Kremen'yuk: "'Reagan Doctrine'--Policy of Escalating Intervention"]

[Text] Almost every American president since the end of World War II has announced his own "doctrine." The "doctrines" of Truman, Eisenhower, Kennedy, Johnson, Nixon, Ford and Carter come to mind. Until recently, Reagan's name was not on the list. But the situation has changed in recent months. The term "Reagan doctrine" is being used with increasing frequency. It can be found in the press and in statements by politicians and specialists. For example, special articles evaluating this "doctrine" were published this May and June in American newspapers--the WASHINGTON POST and the LOS ANGELES TIMES--and in England's DAILY TELEGRAPH.

The chain of events leading up to the appearance of the "doctrine" began in January 1985. In his "State of the Union" message, Reagan discussed policy toward developing countries and, in particular, U.S. aid to subversive groups fighting against legal governments in a number of states in Asia, Africa and Latin America. "We must not turn our backs on those who are risking their lives on all continents--from Afghanistan to Nicaragua," he declared.

In general, Reagan's declaration added little to what he had already said in previous years about interference in the affairs of emerging countries with a progressive orientation. To some degree, the insistence on this kind of interference on the pretext of struggle against "Soviet expansionism" was present in many of the President's declarations and in virtually all statements by high-ranking U.S. officials on problems in Central America, Africa, the Middle East and South and Southeast Asia. This time it was accompanied by the all-out propaganda reinforcement of "policy" aims and--what is more important--by attempts to record them in legislation.

In January 1985 Director W. Casey of the CIA made the "spread of anti-communist rebel movements" the subject of one of his speeches and mentioned the need for their "unpretentious support by countries wanting liberty to prevail." On 22 February 1985, when Secretary of State G. Shultz addressed the Council on Foreign Relations in San Francisco, he announced the beginning

of what he called "the age of popular rebellions against communist regimes" in developing countries. With a total disregard for the facts, he called the former Somozists in Nicaragua, the leaders of the gangs of Afghanistan, the dissidents from UNITA in Angola and other such individuals "fighters for freedom and democracy."

This entire massive propaganda campaign, which was essentially intended to convince the public that the United States should have moved from "defensive" to "offensive" measures in the developing countries long ago, was then (in February and March 1985) dictated largely by the desire to push the administration's request for 14 million dollars in aid to counterrevolutionary Somozist gangs through the Congress. Members of the administration and the President himself were correct in their assumption that the legislators might not support this "initiative," and this did happen: The House of Representatives denied the administration's request a month later.

This presidential "initiative" again raised one of the most touchy and painful issues for the American political mechanism--the issue of American intervention abroad. Serious battles had been fought over this issue by the White House and Capitol. A law on the President's "war powers" was passed back in 1973 to limit his authority to commit American troops to action in military operations abroad. The issue again aroused emotions and arguments between the executive and legislative branches in 1975-1980, when Congress adopted amendments to bills limiting the administration's ability to intervene indirectly in the affairs of developing countries (for example, the 1976 "Clark Amendment" prohibited the offer of assistance to antigovernment groups in Angola).

Even during President Reagan's first term, the legislators, especially the Democrat-controlled House of Representatives, continued to view their prerogatives in this area as a serious counterbalance to the administration's efforts to pursue a more active policy of intervention in the internal affairs of emerging countries. Congress' position rested largely on the widespread American public objections to involvement in overseas conflicts that might restore compulsory military service, cost American servicemen their lives and require the financing of combat operations.

But the situation began to change after the American invasion of Grenada in October 1983. An analysis conducted by specialists after the island had been seized proved that the American military establishment's expectations of an easy victory were unfounded and that the United States had to increase the number of its troops and extend the deadline for the suppression of the resistance of Grenada's defenders. Nevertheless, during the invasion a high percentage of Americans supported the action.

It was at this time that the administration launched a serious and well-planned assault on Congress in the area of foreign policy.

When the struggle for power within U.S. ruling circles is evaluated, it must be borne in mind that Washington's foreign policy in all of its forms represents a balance of the prevailing interests of the main segments of the

American bourgeoisie. Each of the two parties pursues a policy dictated by the groups traditionally supporting it. The foreign policy line of the current administration is distinguished by increasing intervention and confrontation and an attempt to suppress all potential adversaries in the international arena and simultaneously refrain to the maximum from involvement in treaty commitments restricting the United States' freedom of action abroad. It reflects the interests of the most dynamic and most aggressively expansionist circles in foreign policy matters--the financial and industrial capitalist groups working on military contracts and new technology (from California and other western and "sun belt" states).

The foreign policy activity of the Reagan Administration is sometimes complicated by congressional opposition, particularly from the Democrat-controlled House of Representatives. Under these conditions, the administration is striving to coordinate foreign and domestic political strategy to the maximum, including its tactical line in Congress, in such a way as to put the Democratic majority in the House of Representatives in a vulnerable position when decisions are to be made on a foreign policy move by giving it the choice of supporting presidential initiatives or appearing to betray U.S. "vital interests." Besides this, the White House is trying to conduct this line in such a way as to, on the one hand, weaken Congress' control over presidential power to increase the President's foreign policy authority and, on the other, accumulate political capital for the Republican Party with a view to the fact that its future candidate will no longer be the indisputable favorite in the coming 1988 elections. The administration is not concealing its desire for an obedient Congress. The President himself has said this several times. Congress, however, has tried until recently to retain a definite role in policymaking, and this was attested to by its initial position on the request for 14 million dollars in aid to the Nicaraguan counterrevolutionaries.

The administration's powerful propaganda campaign, however, seemed to break through the congressmen's resistance. Some contributing factors were the general atmosphere of hysteria, agitation and rabid anti-Sovietism. It should be stressed that the issue of U.S. intervention in the affairs of emerging countries, as it was worded in the President's January message and in subsequent statements by administration spokesmen, was removed from the confines of the interests of strengthening U.S. positions in these countries in the propaganda sense and was put in the context of "struggle against the USSR."

Furthermore, Washington portrayed intervention in the affairs of emerging countries under the banner of the struggle "for freedom and against slavery" as a Republican Party program in contrast to Democratic aims. When Ronald Reagan spoke at a fund-raising banquet for Senator P. Hawkins' campaign in Florida on 27 May 1985, he explained the premises of his "doctrine" at length. He underscored the fact that it was precisely the Republicans who were worried about the USSR's "infiltration" of the developing countries and the establishment of "communist" orders there and wanted to aid "freedom fighters," whereas the Democrats controlling the House of Representatives were prepared to sacrifice a matter of such importance to the United States for the sake of their party interests.

This demagoguery and the related campaign in the mass media demoralized some Democratic congressmen and started something like a race of "initiatives" in surrender to White House pressure.

The "Clark Amendment" was repealed by the Senate and then by the House of Representatives in June 1985. The results of the vote on this amendment were immediately included in a bill on State Department appropriations for the next fiscal year.

Of course, Washington was aiding UNITA even when the "Clark Amendment" was in force, but in a roundabout way, mainly through South Africa. The repeal of this amendment provided real opportunities for broader subversive activity against Angola and against any other country, since the Clark Amendment had served as a barrier to some extent to block direct U.S. intervention in various regions.

That same month Congress reversed its opinion and approved an amendment envisaging "non-military aid" to the gangs of "contras" trying to overthrow the Nicaragua. First the Senate approved the allocation of 38 million dollars to them, and then the House approved allocations for the same purpose, although it is true that it reduced the amount to 27 million dollars. There is no question, however, that the main issue is not the sum, as the actual assistance Washington renders to the "contras" through various channels amounts to a much higher figure, but the fact that the support of counterrevolutionary groups fighting against Nicaragua has been elevated to the status of official policy. The United States is participating more and more directly and more and more extensively in operations for the overthrow of the legal government of Nicaragua.

At the end of June the House of Representatives approved an amendment to the bill on military appropriations for fiscal year 1986, which gives the President the power "under certain circumstances" to send troops to Nicaragua without congressional authorization. According to this amendment, the pretext for this aggression could be the old excuse of the need to "protect American citizens" or the "clear danger of an attack on the United States or its allies." (This amendment naturally brings to mind the notorious "Tonkin Resolution" of the American Congress, which gave the United States a chance to launch direct military operations against the Vietnamese people.)

The American Congress' decisions signified legislative reinforcement of the administration's policy of supporting various counterrevolutionary forces conducting subversive activity against the governments of young independent states.

From the very beginning, the Reagan Administration gave active moral and material assistance to mercenaries fighting in Nicaragua, Afghanistan and Angola against their legal governments and peoples. The list could go on. The Afghan counterrevolutionaries alone have received assistance totaling 380-400 million dollars through various channels from the United States since 1979. Besides this, they were supposed to have received a minimum of 250 million dollars more in fiscal year 1985.

Administration policy toward Nicaragua, which has become even tougher in the past 6 months, is a particularly indicative example. The tone of statements about Nicaragua, which is constantly being accused of threatening U.S. security, has become much more aggressive.

Cuba has been attacked brutally and called "the mainspring of most of the trouble in Central America." The United States recently began to exert stronger pressure on Cuba through all channels--political, economic and, in particular, propaganda. A subversive radio station began operating in Florida this May by launching genuine psychological warfare against the people of Cuba.

Specific proposals have already been made with regard to making aid to "freedom fighters" a government policy. For example, Republican Senators G. Humphrey and M. Wallop proposed the creation of a presidential coordinating office "to consider and determine possibilities for aiding the cause of freedom fighters throughout the world." And Republican Senator R. Kasten, chairman of the Foreign Operations Subcommittee of the Committee on Appropriations, is drafting a bill on a "freedom fighters' aid fund" for the creation and equipping of "resistance groups" in all "hot spots" on the planet.

It appears that the only matter on which Washington politicians cannot agree concerns the criteria for the offer of aid to these groups. During special hearings on this matter, the impossibility of formulating any exact criteria became quite obvious. For example, in accordance with the most developed and "objective" system, proposed by Democratic Congressman S. Solarz, "rebel groups" should: "consist of members of the country's native population; oppose a foreign occupant, and not a duly installed government; merit the kind of broad regional international support their governments lack." He himself admitted, however, that the U.S. aid to the "contras" did not meet these requirements because the Sandinist government in Nicaragua is not a foreign occupation force; the possibility of aiding UNITA rebels in Angola would be excluded for the same reason.

But there is also another point of view, and it will probably prevail. It was clearly expressed by Assistant Secretary of Defense for International Security Affairs R. Armitage: "An enemy of our enemy can be certain of our friendship."

Therefore, the essence of the "doctrine" has been exposed: Instead of the declared defense of high ideals, there is support for any group, which can depart to the maximum from the ideals of liberty, as long as it acts under the banner of anticommunism. This is precisely the basis for the choice of the organizations to receive U.S. assistance. These are counterrevolutionary forces in Nicaragua, Afghanistan, Laos, Cambodia, Angola, Mozambique, Ethiopia and some other countries. In particular, the President of the United States has already signed a bill on military-economic aid for fiscal years 1986 and 1987, envisaging the allocation of 15 million dollars to Afghan counter-revolutionaries and 5 million to two counterrevolutionary groups in Cambodia.

When we evaluate administration policy toward developing countries, with the "Reagan doctrine" representing a paradigm of this policy, we can single out the following basic guidelines:

First of all, there is the clear intention to escalate U.S. intervention in the affairs of developing countries and intensify interventionist trends in American foreign policy. This has been accompanied by the mounting danger of the escalation of local conflicts into international ones, to the point of action by the American military establishment in support of forces the United States wants to win;

Secondly, there is an obvious desire to legalize American intervention in developing countries and to establish a single conceptual basis for the U.S. struggle against national liberation movements in various parts of the world and thereby give it a more comprehensive and purposeful nature. In essence, this indicates an attempt to move toward an ideological offensive in the international arena, using the slogans of democracy and freedom as a cover, and to establish Washington's right to support any terrorist groups conducting subversive activities against legal governments objectionable to the White House;

Thirdly, there is the aim of uniting all counterrevolutionary, subversive forces on an anticommunist basis and involving them in an even more active struggle against all those Washington considers to be undesirable. A meeting of representatives of four organizations of counterrevolutionaries from Nicaragua, Afghanistan, Laos and Angola was held in Angola on Jamba Base, which the Angolan rebels call their capital. The creation of a "democratic international" was announced at this gathering, and deliverance from "Soviet and Cuban intervention throughout the world" was declared its function. The meeting was organized by an American group, "Citizens for America," headed by L. Lehrman, a Republican millionaire who ran for governor of New York in 1982. Besides this, Lehrman, who was present at the meeting, read a personal message from the President of the United States, containing the statement: "Your goals are our goals." This reaffirmed the U.S. administration's interest in promoting the actions of counterrevolutionaries and terrorists.

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TRENDS, PROBLEMS OF COMPUTER USE IN U.S. SCHOOLS EXAMINED

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 11, Nov 85
(signed to press 16 Oct 85) pp 89-96

[Article by Yu. A. Savinov and Yu. D. Shcherbina: "Computers in American Schools: Trends and Problems"]

[Text] In recent years, computers have been used with increasing frequency to heighten the effectiveness of instruction in U.S. schools. The development of personal computers (PC's), which are relatively cheap and easy to use, established the prerequisites for the intensive incorporation of computers in the academic process. The use of computers, however, revealed a number of serious problems and contradictions in the American system of education. It became obvious that cuts in budget allocations for the development of elementary, secondary and higher education in the country had had a negative effect on the quality of instruction. According to a statement of the National Science Teachers Association, the unsatisfactory preparation of students in such basic subjects as English and foreign languages, and especially in math and science, will have far-reaching consequences. "If radical measures are not taken," the statement said, "the level of instruction in mathematics and science will continue to decline, and this will threaten the security of the nation, the economy and the United States' position of leadership among the Western countries."

"Young people blame those who are supposed to teach them science for their failure to acquire the necessary knowledge of biology, chemistry and physics and, consequently, for their inability to live and work in a technologically oriented society," association Director B. Aldridge stated. In his opinion, "science instruction is in a catastrophic state. Ten years ago this situation was considered to be normal because no one was trying to teach these sciences to all students; these were courses only for those planning a career in science or engineering. But now the natural sciences must be taught to all students, so that technological illiteracy can be avoided."¹

It is common knowledge that the use of modern teaching equipment, especially PC's, can eradicate this illiteracy.

The use of computers in schools, however, entails various difficulties. In particular, there are still no clear answers to some questions: Who will finance and oversee the acquisition of computers by schools? How will they

be used after they have been installed? What changes will they make in the entire educational system? How can all students be given equal access to computers, regardless of socioeconomic factors?

The answers to these questions will depend largely on progress in the sphere of education. This is what many American teachers believe.

Number of Computers in Schools

In general, data on the use of PC's in education are quite impressive. According to the estimates of the National Center for Education Statistics, the number in elementary and secondary schools rose from 31,000 in 1981 to 325,000 in 1983. According to the Market Research Institute in Chicago, at the beginning of 1985 American schools already had 720,000 computers. Nevertheless, this is a fairly modest figure in comparison to the 6 million PC's in the production sphere and the 6.5 million in homes.²

According to the calculations of experts from the Future Computing firm, in 1981 there was 1 computer for every 913 students on the average, and in 1985 there was 1 for every 72. Furthermore, in public schools in Greenwich (Connecticut) there is 1 computer for every 47 students; in the South Orange-Maplewood Unified School District (New Jersey), there is 1 computer for every 40 students; in the Montclair District (New Jersey) there is 1 for every 26, and in New York there is 1 for every 95 students.³ If the process continues at this rate, in 1990 there will be 1 computer for every 14 students in the nation. Some people believe, however, that striving to provide each student with a computer of his own is not worth the effort. The main objective is the more effective use of existing equipment.

Nevertheless, schools are continuing to acquire computers. According to the estimate of Tolmis, Inc., a consulting firm, the United States bought more than 250 million dollars' worth of computers for academic processes in the 1984/85 school year.⁴ Computers are also being acquired for teacher training. For example, the Department of Education of the State of California requested 42 million dollars for the 1985/86 school year, or three times the figure for the previous school year, for the training of instructors and the development of software. The state of Tennessee plans to acquire 6,000 Apple IIe computers in 1985 for classes to eradicate computer illiteracy among teachers.

In many regions a shortage of funds is keeping schools from acquiring new equipment. Quite often, schools make a serious mistake by spending all of their money on equipment and not acquiring software. This indicates poor planning.

At the same time, the rapid replacement of PC models in the market and the development of new and better software are stimulating the cumulative demand for school computers. "We cannot afford to buy as many machines as we need, and this might be for the better, considering the high rate of scientific and technical progress in the production and use of computers,"⁵ B. Weiss, an expert on computer-aided instruction, commented in an ironic tone.

Although the number of computers in schools is rising, there is still an acute shortage. Besides this, even if forecasts come true, it will be several years before the 40 million students in 85,000 public schools learn to use them. The difficulties are compounded by the absence of a government policy on the use of computers in the schools.

In 1984 some bills aimed at the more effective use of computers in schools were discussed in the U.S. Congress. One was the "Statute on the Development of Computer-Aided Instruction" and another was the "Statute on the Development of Computer Literacy." Many of the recommendations in the two "statutes" are identical and are aimed at training teachers to use the new equipment; they envisage the allocation of funds for computers and software. They differ in the amounts of federal assistance they propose. The first bill provides for the allocation of 150 million dollars a year for 4 years for the acquisition of computers (with automatic renewal for another 3 years). The second stipulates that there should be 1 computer for every 30 students in every public school by the end of 3 years. According to the Congressional Budget Office, the second program will cost 717 million dollars a year. A third bill proposes the creation of a national educational software corporation. It would allocate the funds needed for software development.⁶

The Apple firm is the leader in computer sales to schools. It accounts for around 50 percent of all purchases, and the Tandy firm ranks second (with 22 percent of the market), with Commodore International accounting for 16 percent of all purchases, IBM accounting for 5 percent, Texas Instruments for 4 percent and Atari for 3 percent. Apple is worried about stronger competition from IBM. In 1983 the latter spent around 20 million dollars to equip schools with its own computers.⁷

According to Infocorp, a consulting firm, schools and colleges account for 20 percent of Apple's sales (1.5 billion dollars in 1984).⁸ Apple has a good reputation among specialists in education. Its Apple IIe model has been used in schools for 8 years, the firm is experienced in the incorporation of machines in the academic process, and it has a well-developed technical maintenance network.

Acorn, a subsidiary of the English company Acorn Computers, Ltd., is now selling more computers to schools. The firm sells computers designed in Great Britain and manufactured in the United States. Each month it manufactures 40,000 computers for sale in Great Britain, Spain, the FRG, India and Sweden. Acorn offers customers a set of applied programs in addition to PC's to unite all of the machines installed in an academic institution in a single network.

Tandy, according to NEW YORK TIMES correspondents, is unable to compete with the Apple, IBM and Acorn companies and therefore intends to develop a new Tandy-1000 computer series, operating on programs developed for computers of the IBM company.⁹

In the United States, manufacturing firms frequently supply academic institutions with "free" equipment. The State of California gives these firms special tax credits. Apple, for example, supplies all schools in the state

with accessories for its computers. They include supplementary memory and monitoring devices and components for the printed and graphic display of information. By September 1984 it had sent out 9,250 systems with a value of 20 million dollars. IBM presented schools in the states of New York, Florida and California with 1,500 PC's in the form of a "gift." Tandy conducted free courses in the fundamentals of computer use in schools for 150,000 teachers. In general, the so-called "free" deliveries of this equipment and services represented a substantial percentage of the supply of U.S. schools.¹⁰ All of this is being done for stronger influence in the market and for its attachment to the company's own equipment.

In spite of the firms' "gifts," the states have to pay for the installation of the computers, and this cost the Department of Education in Philadelphia 19,000 dollars. The cost of replacing blackboards with special screens is also high.¹¹

In Western Europe, Great Britain has been most successful in this area, with PC's in 98 percent of its schools. In all, 1.5 million computers have been installed in Great Britain, whereas the figure for France is 250,000 and the figure for the FRG is 220,000.

In general, serious competition for the quicker incorporation of the new equipment in the academic process has broken out among the main capitalist countries. Long-range success in this struggle will be an important advantage in international capitalist scientific and technical competition.

Problems in the Incorporation and Mastery of Computers in the Academic Process

The provision of schools with modern computers is only part of the group of problems connected with the incorporation and mastery of PC's in the academic process. The mere provision of schools with computers is unlikely to make any substantial improvements in the teaching process. Although more than half of the schools in the nation now have at least one PC, relatively few students acquire the skill to use this equipment. "In the majority of our schools equipped with computers," said L. Tarr-Velan, a National Education Association administrator, "the equipment is used only by the administration or in the classes of one or two instructors who teach computer science."¹² Her idea was amplified by P. Bonner, one of the publishers of PERSONAL COMPUTING: "For a nation proud of its high level of education, the inability to make full use of the potential of PC's in the sphere of education is a disgrace."¹³

The incorporation of computers in schools is now a haphazard process and is being impeded by the low level of cooperation among teachers, government agencies and private companies--for example, in matters pertaining to the installation and use of the new equipment. An inadequate supply of computers, a supply of software not meeting the requirements of schools or the lack of software, and the shortage of personnel to retrain teachers are all factors inhibiting the use of computers.

In many American schools, computers are being used inefficiently from the standpoint of education. Instead of using computers as a teaching medium, schools are teaching students only the fundamentals of computer operation and

American experts have stressed that the term "computer literacy" should not be confused with programming skills or the ability to work as a computer operator or systems analyst. Computers must serve as a tool of learning. According to Mary White, director of the Electronics Laboratory of Columbia University's School of Education (New York City), "the best teaching systems are those in which the eradication of total computer illiteracy is followed by the study of the fundamentals of programming and then by the use of computers as an educational medium. In these schools, PC's are installed in classrooms and students use them as electronic pencils."¹⁴

In the opinion of E. Boyer, the president of the Carnegie Foundation for the Advancement of Teaching, the use of computers in the schools should pursue three goals: 1) the acquisition of knowledge about computers. The machine should be accessible to specialists with no technological skills. In the future, few users will waste time on programming or keyboard data entry; 2) the acquisition of knowledge with the aid of computers. This entails the use of the equipment for the collection of information and the use of terminals in the school library or in classrooms for reference and bibliographic search functions. Students at Princeton University and New Jersey State College use PC's connected by telephone to a data bank containing the American Academic Encyclopaedia, consisting of 21 volumes in printed form (9 million words); 3) the acquisition of knowledge from computers. Computer-aided instruction is an interactive process. Its possibilities are utilized best when the student uses the computer to acquire the most complex and thorough knowledge and when he can change and deepen his way of thinking during the learning process.

One of the main factors impeding the use of computers in academic institutions is the insufficient quantity of good programs. Despite the large supply of software on the market, only a few programs meet the needs of schools. For this reason, some schools in the state of New York, for example, cannot acquire programs without the authorization of a special center for the evaluation of software for public schools. The center has approved only 200 of the 10,000 programs offered by various firms.¹⁵ There are serious differences, however, in assessments of the quality of software by software firms, teachers and government institutions.

In the opinion of KBC Educational and Professional Publishing, software manufacturers spend a hundred million dollars a year on the development of programs. Although the quality of software is improving, this process is not quick enough to change negative trends in the use of computers in schools. According to a special study prepared in 1983 by Johns Hopkins University, wherever microcomputers were acquired prior to July 1981, almost two-thirds of the teachers in secondary schools and one-third of elementary school teachers said that they regarded the new equipment as a teaching "medium" (that is, an aid in teaching subjects having no direct relationship to the science of data processing). The shortage of good software subsequently disillusioned them, and they now regard computers as a "teaching resource" (with which students can learn about the sphere of computers and data processing). On the other hand, only 10 percent of those who initially saw computers only as a "resource" now regard them as a teaching "medium."

The authors of the study note that the view of computers as a "resource" is not characteristic of schools where computers are a recent arrival. The reason for this is that the schools where the machines were first installed encountered serious difficulties in acquiring software and are already quite wary of the new and improved forms, although they can be used with greater success than the old ones.

According to the estimate of K. Bramboch, one of the directors of Educational Computing, a non-profit organization in Minnesota, there is only one solution: The right to choose programs must be exercised by the final user--that is, the teacher. This would necessitate the issuance of from 25 to 50 of the best programs in each academic subject to each teacher, so that each could choose the best.

The example of the video games played on microcomputers proves that computers are capable of holding the interest of even difficult children and extending the attention span of students, and this is something that not even every experienced teacher can do. Experts have concluded that pre-schoolers quickly become attached to a computer. It is under their control, it responds immediately to their commands and it does not "scold" them for their mistakes. On this basis, specialists have recommended that elements of video games, which develop quick thinking and alertness and cultivate an interest in learning, be used in the compilation of programs for school computers. They have stressed that video games are effective in the development and reinforcement of mechanical skills, whereas the teaching of academic subjects requires a different approach, and academic programs for computers must be compiled on a qualitatively higher level. These programs should help children understand what they are taught, because it is important to teach children to think independently and to use the knowledge they acquire creatively. They have recommended that the following questions be taken into consideration during the compilation of an academic program: How effective will it be? Will it require the interpretation of new information, and not mere recall? How new and original is the concept? Will it lose its value and will the student lose interest in it after repeated use? Could it frighten the student or offend him?¹⁶ These are matters of great concern to American pedagogues.

The main problem, however, is not only that programmers are not always well versed in the specifics of the academic process, but also that the teacher does not know enough about computers. According to experts, the process could be successful if programmers learn about the psychological peculiarities of children and about the theory and practice of teaching in the schools, and if teachers learn about computers.

Some teachers are trying to master the use of computers on their own. Group forms of training are being practiced more widely. In California, Virginia and Minnesota, for example, instructors are being taught the fundamentals of computer use in college. The solution is not always an easy one, however. In New York, for instance, the Center for Vocational Teacher Education does not have enough special equipment. Besides this, although the number of courses and programs for teachers is rising, it is still almost exclusively a matter of teaching elementary methods of using computers, printers and floppy

disk units. The knowledge they acquire does not give them an understanding of scientific and technical achievements or the ability to find the most suitable programs for specific classes. As a result, the schools buy primitive software.

American specialists believe that the improvement of computer-aided instruction will necessitate the creation of special service centers to advise teachers on programming, which will allow them to constantly improve programs in line with the requirements of their school. Some academic journals in the United States have begun publishing articles on software as a help to teachers, but these efforts are still inadequate. In the opinion of E. Boyer, a national commission, made up of the best teachers, should be formed to assess the quality of software for school computers. The recommendations of this commission should then be brought to the attention of all schools. Besides this, summer seminars for advanced teacher training have been suggested. One problem is the need to avoid hostility toward the new equipment and the learning process. This does not mean that the classroom should be turned into a video arcade. A combination of traditional and non-traditional teaching methods would be best. This would require teachers as well as computers. "Television, personal computers, word processors and large computers cannot assess real values," PERSONAL COMPUTING commented, "they cannot make students intelligent. This is the job of the teacher."¹⁷

Therefore, the incorporation of PC's in the academic process entails objective difficulties. In addition, there are difficulties of a social nature.

Social Problems

The most common problem is a sad fact of life: The poorer the school, the less chance it has of acquiring new equipment. As the Johns Hopkins University study stressed, "public schools in neighborhoods with a high percentage of low-income families have little chance of acquiring PC's. For example, whereas two-thirds of the public schools in rich neighborhoods have micro-computers, the figure is only 41 percent in poor neighborhoods." Furthermore, the teachers in the latter are less qualified.

According to a study conducted by the University of Minnesota in 1983, the 12,000 richest schools have four times as many computers as the 12,000 poorest. As for the use of computers, "for children in poor neighborhoods the computer is usually an entertainment medium, but the students in rich neighborhood acquire programming and modeling skills." As specialists have pointed out, differences in the use of computers in schools reflect the socioeconomic differences between population groups. Children of wealthy parents have computers in their homes and their friends have computers--that is, computers are accessible to them outside the school.

Some American authors have tried to conceal the socioeconomic aspects of the problem by asserting that differences in levels of education will disappear in time, just as the differences in the number of TV sets owned by families with various income levels supposedly disappeared in time. The more sober administrators in the American educational system, however, are less optimistic.

The impossibility of solving the social problem "could lead to the creation of a technological caste in rich public schools in the future."

The extensive use of computers in schools and the training of a new generation of workers with a qualitatively higher level of knowledge could influence employment patterns and intensify the stratification of the working class. Many laborers, most of them middle-aged, who perform mechanical operations--the workers of automobile, machine-building and metallurgical enterprises--are wary of young workers familiar with data processing equipment. In connection with this, some schools intend to offer night classes for adults, on the order of remedial computer studies.

This means that the use of computers in schools will intensify social stratification. Furthermore, if the necessary measures are not taken, the low educational level of many students who have not been able to master computers will, in the opinion of American experts, have other extremely serious consequences. The academic background of skilled workers, technicians and managers can have a direct effect on the country's competitive potential in foreign markets.

In general, specialists are quite optimistic about the prospects of the use of computers in schools. According to forecasts, in the middle of the 1990's the number of all types of computers in U.S. schools will reach 5.4 million.¹⁸ The widespread incorporation of computers in the academic process will have important social implications. Above all, some have expressed the hope that computer-aided instruction can improve the quality of teaching substantially in all subjects and prepare students to deal with the technology of the future.

American teachers hope and dream that the constant use of computers by each student will be an organic part of the academic process in the future. It will be easy for the student to transfer his attention from the teacher to the console and back again. Computers can be used to study the human anatomy in detail, conduct scientific experiments, design buildings, judge the strength of girders, obtain color pictures of the best paintings in the world's galleries, etc. As American specialists have noted, for the children who are starting school now and who will become part of the labor force in the 21st century, computer-aided instruction cannot be regarded as a luxury or an indulgence. It is essential.

FOOTNOTES

1. PERSONAL COMPUTING, September 1984, p 94.
2. WIRTSCHAFTSWOCHE, 17 May 1985, p 46.
3. THE NEW YORK TIMES, 10 December 1984.
4. THE WALL STREET JOURNAL, 17 April 1985.
5. THE NEW YORK TIMES, 10 December 1984.

6. PERSONAL COMPUTING, September 1984, p 72.
7. THE NEW YORK TIMES, 10 December 1984.
8. THE WALL STREET JOURNAL, 17 April 1985.
9. THE NEW YORK TIMES, 10 December 1984.
10. PERSONAL COMPUTING, September 1984, p 69.
11. THE WALL STREET JOURNAL, 17 April 1985.
12. PERSONAL COMPUTING, September 1984, p 64.
13. Ibid.
14. Ibid., p 69.
15. Ibid., p 71.
16. HIGH TECHNOLOGY, March 1985, p 10.
17. PERSONAL COMPUTING, September 1984, p 85.
18. THE NEW YORK TIMES, 10 December 1984.

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A. A. GROMYKO BOOK ON KENNEDY CLAN REVIEWED

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[Review by E. A. Ivanyan of book "Bratya Kennedi" [The Kennedy Brothers] by Anatoliy Gromyko and Andrey Kokoshin, Moscow, Mysl, 1985, 480 pages: "The Political Destiny of the Kennedy Clan"]

[Text] American families presenting the country with extraordinary politicians are not rare in the United States. The Adams, Harrison, Roosevelt, Stevenson, Taft, Lodge and Bush families, which produced presidents, vice-presidents and prominent senators of the United States, are a constant source of interest to historians. However, it is probable that no other political family in the United States has aroused as much interest as the Kennedy family. And not only because the members of this family played a perceptible role in U.S. politics and international affairs. It would be difficult to forget the tragic fate of President John F. Kennedy and Senator Robert F. Kennedy, who were assassinated at the height of their political careers (their older brother Joseph, from whom the Kennedy family expected a particularly brilliant political career, died during a combat mission in the sky over Europe during World War II). The active career of the youngest brother, Edward, suggests that the Kennedy family has not had its final say in national affairs yet.

Historians in our country have also written about the Kennedy brothers. Now a new book by renowned Soviet experts on international affairs has been published. This is a unique study, representing an original combination of a political biography--or, more precisely, three political biographies--with a thorough analysis of U.S. domestic and foreign policy in the last 25 years.

The lives of the Kennedy brothers and their political careers are interwoven and interrelated to such an extent that it seems absolutely impossible to speak of the political career of one without mentioning the career of another. John Kennedy was followed (and, during the years of the McCarthyist reaction, even preceded somewhat) by Robert Kennedy, a reliable adviser on all matters, major and minor, literally from his first steps in the national arena. The role John and Robert played in Edward Kennedy's political career is absolutely indisputable. Rightfully occupying an influential seat in the Senate, E. Kennedy has had to wage a difficult battle against his political opponents and has also had to compete with the shadows of his famous brothers.

John, the only brother (at least to date) who reached the top of the American political Olympus, naturally occupies a special place in the monograph under review. But the authors have not confined themselves to an explanation of how he reached this sacred goal. They also present a detailed description and analysis of the domestic political situation and psychological atmosphere in which the single-minded and ambitious senator from Massachusetts was able to win the presidential election in 1960. This is accompanied by a thorough discussion of the political forces, economic groups and public circles supporting and opposing J. Kennedy in his race for the White House. The authors pay special attention to a description and analysis of the world situation at the beginning of the 1960's. They stress that J. Kennedy was known to take a sober view of the future development of American-Soviet relations, acknowledging the need for constructive discussion and negotiation with the Soviet Union. The authors specify that "the mere fact that the matter was stated in positive terms represented a definite advance in comparison to the fierce anticommunist and anti-Soviet campaign that had swept through the United States" (p 79). At the same time, J. Kennedy "paid attention to the demands of the military establishment" and "it was no coincidence," the authors write, "that one of the underlying themes of his campaign speeches was the thesis that the U.S. Government was guilty of many 'gaps' in the sphere of defense" (p 96).

Readers will learn some interesting facts about President J. Kennedy's activities, beginning with his first steps--the attempts to implement the theoretical premises of the New Frontier policy, the details of his administration's greatest foreign policy fiasco--the Bay of Pigs venture, the series of international crises and attempts to avoid difficult confrontations with the Soviet Union and, finally, the way in which the President arrived at the conclusion that the issue of war and peace was "the most important issue in the world" and how he opposed those who believed that "war is inevitable," that "mankind is doomed" and that "we are at the mercy of forces we cannot control" (p 266).

Although the authors evaluate some of the sober and farsighted statements and steps President Kennedy made, they also point out the fact that he "was not active enough in maintaining and developing positive tendencies in U.S. foreign policy," apparently believing that "he had already taken enough extraordinary steps and did not have to tempt fate any further by alienating the camp of extreme rightwing reaction even more" (p 271). The fact that Kennedy's fears about the severity of the political situation in the United States were not unfounded was confirmed by the events of 22 November 1963 in Dallas.

"Robert Kennedy--The Man Who Did Not Become President"--this is the title of the section of the work dealing with this unquestionably outstanding political figure. Although R. Kennedy was never made U.S. secretary of defense (the position he dreamed of), as the attorney general he frequently had more influence on American military and foreign policy than secretaries of state and defense have dreamed of throughout U.S. history. As soon as President Lyndon Johnson entered the White House, however, R. Kennedy's role and place in U.S. politics changed considerably. The new President's gradual but

purposeful refusal to retain even the semblance of a continuation of the previous policy line made R. Kennedy's continued presence in the office of attorney general undesirable and even absolutely impossible.

The authors of the work thoroughly and scrupulously trace the development of L. Johnson's relationship with R. Kennedy against the background of major foreign and domestic political events. Robert Kennedy was so popular that L. Johnson would probably have lost the race for the presidential nomination in 1968. "Fate"--or, more precisely, forces hostile to R. Kennedy--decided otherwise: "Another Kennedy brother was removed from the political arena in the most brutal manner" (p 432).

The incomplete nature (deliberate and quite justifiable) of the final section of the monograph is underscored by the authors themselves in the title of this section: "Edward Kennedy--Senator and...?" It is true that it would be senseless to use any punctuation marks other than ellipses in reference to the political future of the influential senator from Massachusetts who is now in his prime and who, as American observers have noted, will still be younger even at the end of this century than Ronald Reagan was when he became president of the United States at 70. Especially since Kennedy frankly admitted in an interview in the BOSTON GLOBE this March: "I would like to be president someday." Edward Kennedy has come a long way from the political novice he was at the beginning of the 1960's. Although much of the concluding section of the monograph deals less with E. Kennedy personally than with events inside and outside the United States, the reader acquires the conviction that it is precisely during the course of these events, by defining his position on each of them, that Edward M. Kennedy is developing and maturing as a politician.

Today, the authors remark, "despite all of the reversals of his career, he has established himself as one of the most prominent figures in the U.S. Democratic Party by becoming the leader of its liberal wing.... Although E. Kennedy 's an active class opponent of socialism, he simultaneously represents the American officials with realistic views who, at least at the present time, see no other way of conducting affairs with the Soviet Union and other states of the socialist community than within the framework of peaceful coexistence, envisaging primarily the maintenance of peace, the limitation of arms and disarmament" (p 467).

Anat. A. Gromyko and A. A. Kokoshin have written an interesting, fact-filled book. There is no question that it will be of tremendous interest to historians and to the general Soviet reading public.

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BOOK ON U.S. 'STATE TERRORISM' REVIEWED

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[Review by V. A. Kremen'yuk and V. P. Lukin of book "Terrorizm--gosudarstvennaya politika SShA" [Terrorism--U.S. State Policy] by V. O. Shragin, Moscow, Politizdat, 1984, 207 pages: "The Roots of State Terrorism"]

[Text] State terrorism has recently been a source of increasing interest to the world public. The United Nations is actively studying this problem; other international organizations are also studying it. The governments of many countries have had to take the existence of this problem into account to an increasing degree in their foreign policy behavior.

The real sources of terrorism in general and state terrorism in particular are still the matter of considerable debate. The answer to the question will largely determine the nature of the ideological and diplomatic struggle in international affairs, and a thorough scientific analysis of the problem is therefore essential.

This new book by Soviet historian V. O. Shragin contains precisely this kind of analysis. In the introduction, the author says that "the use of terrorist methods in international relations is characteristic of imperialist reaction" and that "terrorism was and is an instrument for the export of counter-revolution" (p 8).

These basic premises, founded on Lenin's methods of studying imperialism, allow the author to study specific incidents of U.S. state terrorism and to "single out" the main source of this phenomenon in present-day international affairs--Washington's adventuristic policy. The United States is not concealing its reliance on force as the fundamental principle of its foreign policy. Flagrant forcible intervention in the affairs of independent states became the focal point of all U.S. foreign policy after World War II.

In this context, terrorism occupied an important place in U.S. behavior in international affairs as a logical extension of this policy. The Washington administration, the author writes, "turned violent actions against 'undesirable' countries into one of the main elements of U.S. government policy" (p 11).

The author thoroughly analyzes the U.S. policy of state terrorism. He uncovers the roots of this policy--the reliance on force and terror (pp 12-29)--and reveals its goals--the overthrow of undesirable governments, the organization of conspiracies and assassinations and the pressuring and blackmail of sovereign governments (pp 30-40). A considerable part of the book is devoted to a study of the means and methods of this policy--"nuclear aircraft carrier diplomacy," the creation of a network of bases and bridge-heads for aggression throughout the world, the reinforcement of Marine units and special troops, etc.

V. O. Shragin draws a distinction between so-called "legal" terrorism (in other words, the use of force with the aid of units and subunits of the U.S. Armed Forces) and "illegal" terrorism, when the CIA takes action with its covert subversive methods. Of course, this distinction is of no importance to the countries against which terrorist acts are committed by the United States: Both types undermine domestic political stability and jeopardize the sovereignty and autonomy of independent states.

But the distinction is of definite significance in U.S. domestic politics. When the administration commits terrorist actions against other countries, it generally tries to gain the moral and political support of part of the American public. And whenever this support can be expected, it uses "legal" means--aircraft carriers, the Marines and special forces. It is more common, however, for broad segments of the U.S. public to oppose overt intervention in the affairs of independent states, and in these cases the policy of terrorism is pursued primarily by the CIA with its covert methods (pp 103-107).

V. O. Shragin thoroughly analyzes the U.S. policy of terrorism against specific countries and regions. Afghanistan, Angola, Chile, Cuba, India, Grenada, Nicaragua, El Salvador--this is far from a complete list of the countries where acts of terrorism, violence, robbery and murder are committed with Washington's blessing and financial backing. The United States' covert and overt warfare against the world community truly knows no bounds.

But some kind of bounds must be set, and the author points out convincing examples of the activities of the Soviet State, other socialist countries and all progressive and peaceful forces against the American policy of state terrorism.

There are some shortcomings in V. O. Shragin's book. For example, the author might be criticized for his slightly disjointed narrative, in which the study of general and fundamental issues is combined with discussions of relatively specific matters. In general, however, V. O. Shragin's book is an interesting and competent study of a politically pertinent topic and will add to the knowledge of a broad range of readers.

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CSO: 1803/02

REVIEW OF BOOK ON INTERNATIONAL ECONOMIC DEVELOPMENT

Moscow SSHA: EKONOMIKA, POLITIKA, IDEOLOGIYA in Russian No 11, Nov 85
(signed to press 16 Oct 85) pp 108-110

[Review by A. S. Grachev and A. B. Parkanskiy of book "Mirovoye ekonomicheskoye razvitiye: rezervy sotrudnichestvo" [World Economic Development: Potential for Cooperation] by Yu. M. Khilchevskiy and A. K. Subbotin, Moscow, Mysl, 1984, 245 pages: "Global Problems and the Prospects for Their Resolution"]

[Text] In our day it is becoming increasingly obvious that several major social processes coinciding with the technological revolution have led to the birth and growing prominence of a new factor of world development--global problems common to all mankind. Those which, as speakers noted at the June (1983) CPSU Central Committee Plenum, "concern all countries of the world and are growing increasingly important,"* include primarily the need to keep the peace and avert the threat of thermonuclear world war, to establish a permanent mechanism of international communication allowing for the timely resolution of international conflicts and problems, and to regulate the development of relations between states with differing social orders and levels of economic development in the interests of their populations and all mankind. In addition to the fundamental issue of war and peace, the problems of surmounting underdevelopment and securing economic growth, the food, raw material, energy and ecological crises and the problems of exploiting the world ocean and outer space are justifiably categorized as global issues.

Their global nature stems not only from the scales of the threat they pose, but also from the fact that their resolution will necessitate the united and concerted efforts of the people of all countries and an effective system of international cooperation.

In our country there have been perceptible advances in recent years in the study of these problems, which are relatively new to human thought and to the social sciences. Published studies attest to the establishment of an authoritative school of Soviet researchers of global affairs, who analyze the essence of these problems and their consequences from a Marxist standpoint and propose specific and realistic solutions.

* "Materialy Plenuma Tsentralnogo Komiteta KPSS 14-15 iyunya 1983 g."
[Materials of the CPSU Central Committee Plenum of 14-15 June 1983],
Moscow, 1983, p 24.

The recently published monograph by Yu. M. Khilchevskiy and A. K. Subbotin is a noteworthy contribution to the work of Soviet researchers. The authors set themselves the pertinent and difficult task of conducting a comprehensive analysis of the natural tendencies in world economic development under the conditions of the appearance and exacerbation of global problems. They concentrate on a study of the interaction of various factors influencing the basic mechanism for the resolution of global problems--the current system of international cooperation. The disclosure of the basic tendencies in the functioning of this system and the analysis of present-day capitalism's potential to solve worldwide problems are particularly important because, as speakers noted at the 26th CPSU Congress, "life demands productive cooperation by all states in the performance of the peaceful and constructive tasks facing each nation and all mankind."*

The authors correctly note that the engineering of a coordinated strategy for the resolution of global problems has become one of the most important spheres of the ideological struggle, the results of which will depend largely on the ideological aims, social goals and political priorities of class forces motivated by the development of civilization. The authors stress that "communists are countering the fatalism and social pessimism of bourgeois global studies with historic optimism and confidence in the real possibility of solving these problems" (p 23). They draw the valid conclusion that the connection between the struggle for peace and global problems, the need for peaceful coexistence and mutually beneficial cooperation by the two opposing sociopolitical systems, can be seen in the fact that the continued internationalization of economic affairs on the planetary scale will be effective only under the conditions of the development of cooperation.

The authors thoroughly analyze the approach of developed capitalist countries to the resolution of global problems. They examine bourgeois theories of world economic development and the basic aims of Western foreign economic policy and diplomacy in this sphere. In their examination of the interconnection of political and economic aspects, the authors could not ignore a subject of international economic relations as important as the transnational corporations. The channels of TNC pressure on developing countries are described in detail, and the multifaceted use of transnational corporations by ruling circles in Western countries to subordinate the policies of emerging states to the economic and strategic interests of imperialist powers is analyzed (p 185).

The authors' analysis of American policy in outer space is of special interest in light of the new Soviet-American talks in Geneva. Revealing the aggressive nature of U.S. policy, with its ultimate aim of undermining the existing military-strategic balance, the authors validate their thesis that space "represents a special and specific area of struggle and cooperation between the two opposing sociopolitical systems" (p 82).

A comprehensive study of the policy line of the United States and its allies in the first half of the 1980's leads Yu. M. Khilchevskiy and A. K. Subbotin

* "Materialy XXVI syezda KPSS" [Materials of the 26th CPSU Congress], Moscow, 1981, p 26.

to the important conclusion that the essence of Washington's new approach in the current decade "is the policy of deglobalizing problems common to all humanity. Officially, ruling circles in capitalist countries still acknowledge the planetary nature of the problems facing mankind. In their actual behavior in the sphere of global resource crises, however, they appear to be reducing the world economy to the size of the capitalist system" (p 226). This approach represents an ultimately historically doomed attempt to "exclude" the socialist countries from participation in the resolution of global problems and to prevent the growth of their international political influence, as well as progressive and social changes in the developing states.

It is impossible, however, to stop the objective process of world development. The authors correctly point out the complex dynamic state of the factors stimulating the growth of the potential for international cooperation. Some of them cease to have an effect at the end of the historical period engendering them and are replaced by others. Furthermore, some of these factors are transformed and continue to operate in other forms.

One of the authors' achievements is their sober and objective analysis of present-day capitalism's ability to deglobalize worldwide problems and thereby retain its influence in the world. "Among its assets," they stress, "it has huge accumulations--the result of centuries of colonial domination, considerable scientific potential, highly developed technology, modern methods of managing and organizing production and a large share of the world's natural resources" (p 227).

The authors also justifiably underscore the powerful propaganda system to mold the opinions of the general public in countries and regions to which the major capitalist powers are trying to extend their "national interests."

The consistent and principled struggle of the USSR, which advocates the resolution of complex international problems by means of honest and equal negotiations rather than confrontations, is demonstrated conclusively in this work by Yu. M. Khilchevskiy and A. K. Subbotin. The policy line of the CPSU has invariably had the aim of satisfying the vital needs of humanity, particularly the resolution of international problems connected with the raw material, energy and food crises, environmental protection, the peaceful exploration of space, the use of world ocean resources and the improvement of international economic relations on a fair and equitable basis.

This book by Yu. M. Khilchevskiy and A. K. Subbotin represents a timely contribution to the study of the prospects and real possibilities for the elaboration of a worldwide strategy of international cooperation. It will be of interest to experts on international affairs and to the general reading public.

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REPORT OF COMMITTEE OF SOVIET SCIENTISTS AGAINST NUCLEAR THREAT

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(signed to press 16 Oct 85) pp 112-127

[Abridgement* of report of the Committee of Soviet Scientists for Peace and Against the Nuclear Threat: "The Strategic and International Political Consequences of the Creation of a Space Antimissile System Employing Directed Energy Weapons"; foreword by Academician Ye. P. Velikhov, vice president of the USSR Academy of Sciences and chairman of the Committee of Soviet Scientists for Peace and Against the Nuclear Threat; passages rendered in all capital letters are printed in boldface in source]

[Text] Foreword

Soviet scientists, just as some of our colleagues in other countries, including the United States, were already aware, even before President Reagan's famous "Star Wars" speech of 23 March 1983, of the colossal danger a U.S. attempt to create a broad-scale antimissile system would pose to the stability of the military-strategic balance (or strategic stability) and international security. The declaration of the administrators and representatives of 36 academies of sciences (including the USSR Academy of Sciences and the National Academy of Sciences of the United States), signed in Rome in September 1982, said that there could be no defense against nuclear weapons and that the only way of guaranteeing security and reducing the threat of catastrophic war would consist in the limitation and reduction of nuclear weapons to the point of their complete elimination.

As we know, officials in Washington paid no attention to these and other similar opinions. The program of the so-called "Strategic Defense Initiative" (SDI) was drawn up and announced and has now become one of the main elements of the current administration's military policy line.

Washington's hopes that the American and international public would support this program on the strength of its supposedly defensive appearance were unfounded. It was vehemently opposed by the most diverse groups, including prominent American and West European scientists.

* This is an abridged version. The complete text of the third supplemented edition will be published in the form of a separate brochure at the end of 1985.

As M. S. Gorbachev remarked in answer to one of TIME magazine's questions, the SDI program "is extremely dangerous. There is no question that this plan will escalate the arms race in all directions, and this means that the danger of war will increase. The plan is therefore bad for us and for you and for everybody in general.

"We approach what is called the SDI research program from the same standpoint. First of all, we do not view it as a research program. In our opinion, this is the first stage of a project to create a new ABM system, which was prohibited under the treaty of 1972. Consider just its scales--the allocation of 70 billion dollars in the next few years. This is an incredible sum for pure research, as even American scientists have indicated. After all, in today's prices, this is a sum more than four times the cost of the 'Manhattan Project'--the program for the development of nuclear weapons--and more than double the cost of the Apollo program that provided for the development of space research for an entire decade--up to the landing of man on the moon. Other facts, including the tests scheduled for systems of space strike weapons, also testify that this is not at all a pure research program.

"This is why the entire SDI program and its so-called research component are a new and even more dangerous round of the arms race, which will lead unavoidably to new friction in Soviet-American relations."

The creation of a broad-scale antimissile system employing space weapons was widely debated in the international community, and Soviet scientists were active participants in the debates. It must be said that the growth of the antiwar and antinuclear movement has led to the discussion of many military issues, including military-technical ones, in greater detail by the public. The Committee of Soviet Scientists for Peace and Against the Nuclear Threat was appointed by those who attended the All-Union Conference of Scientists for the Deliverance of Mankind from Nuclear War and for Disarmament and Peace, held in Moscow from 17 to 19 May 1983. Two weeks later we decided to conduct a special study of the scientific-technical, military-strategic and international-political aspects of the creation of a broad-scale U.S. anti-missile system with space tiers (with an emphasis on the analysis of space-based tiers, because they were assigned priority in the SDI program). To this end, a working group was formed, with two deputy chairmen of the Committee of Soviet Scientists heading it: Academician R. Z. Sagdeyev, director of the Space Research Institute (IKI) of the USSR Academy of Sciences, and Doctor of Historical Sciences (with a background in radio-electronic engineering) A. A. Kokoshin, deputy director of the Institute of U.S. and Canadian Studies of the USSR Academy of Sciences (ISKAN).

The members of the working group were experts from the Committee of Soviet Scientists: Doctor of Historical Sciences A. G. Arbatov (sector head at IMEMO [Institute of World Economics and International Relations], USSR Academy of Sciences); USSR State Prizewinner and Candidate of Technical Sciences A. A. Vasilyev (ISKAN department head); Candidate of Technical Sciences R. R. Nazirov (IKI, USSR Academy of Sciences); Candidate of Physics and Mathematics O. F. Prilutskiy (department head at IKI, USSR Academy of Sciences); V. G. Rodin (chief designer at IKI, USSR Academy of Sciences);

Candidate of Physics and Mathematics S. N. Rodionov (sector head at IKI, USSR Academy of Sciences); Doctor of Physics and Mathematics V. I. Shevchenko (deputy director of IKI, USSR Academy of Sciences). The notes of Candidate of Historical Sciences M. I. Gerashev (ISKAN), Candidate of Technical Sciences A. A. Konovalov (ISKAN), Candidate of Historical Sciences S. A. Kulik (ISKAN), Candidate of Historical Sciences S. K. Oznobishchev (ISKAN), Candidate of Economic Sciences A. G. Savelyev (IMEMO), Candidate of Physics and Mathematics V. M. Sergeyev and Candidate of Historical Sciences V. B. Lukov (MGIMO [Moscow State Institute of International Relations], USSR Ministry of Foreign Affairs) were used in the project (particularly when the final draft of the report was being prepared). Professor N. A. Lomov, colonel-general (ret) and former deputy chief of General Staff of the USSR Armed Forces; Professor M. A. Milshteyn, lieutenant-general (ret); and Academician B. V. Raushenbakh, former deputy of General Designer and Academician S. V. Koroley, were consulted during the investigation of various problems connected with the subject of the report.

After several discussions by our Soviet colleagues, the preliminary results of the study conducted by the working group were announced at an international science seminar in Italy in August 1983, where representatives of the Committee of Soviet Scientists and the USSR Academy of Sciences had heated debates with American scientists representing the relatively few supporters of "Star Wars" in the U.S. academic community. The initial results of the report passed this test with honors. In November 1983 we published the first version of the report in brochure form (only in a Russian-language edition).

We published the definitive text of the report in Russian and English editions in April 1984. Now we are offering the reader an abridged and revised version of the third edition of the report of the Committee of Soviet Scientists, which will soon be published.

The American Union of Concerned Scientists, Congressional Office of Technology Assessment, a group of scientists from Stanford University headed by renowned physicist S. Drell and a research team from the American Academy of Arts and Sciences headed by Professor F. Long published reports on the same subject in 1984 and 1985; a series of studies were published by Professor R. Garwin, who works for the IBM Corporation, Nobel Prizewinner H. Bethe and renowned physicist W. Panofsky. In general, the conclusions of these American scientists coincide with the conclusions of our report, although each study was conducted independently and with the use of different methods and models.

During the subsequent fierce struggle over the SDI program in the United States and Western Europe, representatives of the U.S. administration and scientists close to it, who work for the American military machine and extreme rightwing organizations, tried several times to discredit the independent studies and their authors in the eyes of the public. Similar attempts were and are being made with regard to the report of the Committee of Soviet Scientists and some of its authors. But these actions have not evoked the anticipated response from the international public and have not kept responsible Western scientists from communicating with their Soviet colleagues.

Furthermore, many prominent Western scientists commended the scientific accuracy of the report of the Committee of Soviet Scientists.

The study of "Star Wars" by the Committee of Soviet Scientists aroused great interest in the Soviet and foreign press. Some of the conclusions and premises of this study were discussed in our country in PRAVDA and MOSKOVSKIYE NOVOSTI, and in MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA, SOVETSKOYE VOYENNOYE OBOZRENIYE, VEK XX I MIR and other magazines. They were discussed abroad in the INTERNATIONAL HERALD TRIBUNE, WASHINGTON POST, NEW YORK TIMES, SPIEGEL and NATURE. The report of the Committee of Soviet Scientists was summarized in AEROSPACE AMERICA and reprinted almost in full in STRATEGIC DIGEST, an anthology publication of the Institute of Strategic Studies in Delhi.

The reason for the report's success, the reason that no one in the West could question its scientific basis and logic, is the extremely serious approach the members of the working group took to the study. The principles and techniques of systems analysis and operational research were put to creative use in the choice of the appropriate procedures and methods. Considerable attention was paid to the exact and accurate formulation of research objectives and the determination of research stages with a view to the multifaceted and interdisciplinary nature of the study. The results of this research, published in the form of a report, are its final result and only a small portion of the papers and notes prepared by various members of the working group of the Committee of Soviet Scientists and their subgroups.

The report also has some shortcomings, some "blank spaces," which the continuation of the project will fill.

Report

When representatives of the Washington administration talk about the well-known "Strategic Defense Initiative," they usually say that this is a matter of long-range plans, intended for the extremely distant future (the beginning of the 21st century). There are many indications, however, that this administration's efforts to escalate research and development for the projected space ABM system could signify a major reversal in Washington's military policy line within the immediate future. Besides this, it must be borne in mind that some influential Americans support the deployment of attack weapons in space as early as the late 1980's and early 1990's on the basis of existing development projects.

Since the end of the 1950's, one of the main assumptions of American strategy has been the idea that the devastating effects of total nuclear war on the United States could not be reduced to an acceptable level. This assumption stemmed from the creation of intercontinental means of delivering nuclear warheads in the USSR and the growth of the absolute numbers of the latter on both sides. After the extremely short-lived strategic experiments with the concepts of "counterforce" and "limitation of losses" in the early 1960's (they envisaged the reduction of U.S. losses through the delivery of strikes against part of the USSR's strategic weapons on their launch sites), official

American strategy fastened on the concept of "assured destruction." The latter, with occasional adjustments (in the form of the concepts of "selective strikes," "limited nuclear war" and others), was the main U.S. nuclear strategy from the end of the 1960's to the beginning of the 1980's. It stipulated that U.S. security, given the presence of accumulated thermonuclear potential on both sides, would be safeguarded not by the possibility of reducing American losses in a world war to some kind of acceptable level, but by the possibility of deterring the use of nuclear weapons by a probable adversary with the threat of comparable or greater losses. Theories and technical systems for the direct defense of U.S. territory against nuclear weapons disappeared from the official documents and statements of the American Government, including the Defense Department. Ballistic missile defense (BMD) systems were discussed almost exclusively in connection with efforts to enhance the survivability of U.S. strategic weapons.

Ronald Reagan's announcement of 23 March 1983 and the proposal of the "Strategic Defense Initiative" program could signify a radical change in these fundamental concepts of official politico-military strategy. Deterrence, connected with the ability of the two great powers to destroy one another even in a retaliatory strike, was called evil, and the idea of the direct defense of U.S. territory against nuclear weapons by all possible means, including the creation of various space-based antimissiles, to which the majority of American specialists assigned the decisive role in securing the creation of an "all-encompassing antimissile shield," was proposed as an alternative. If this tendency toward the revision of U.S. official policy should continue, it could create a fundamentally new strategic, political and psychological context for decisions on offensive and defensive military programs.

1. Scientific and Technical Aspects of the Antimissile System

The basic principle underlying the space tiers of the U.S. antimissile system could be worded as the following: The system should be able to destroy enemy intercontinental ballistic missiles (ICBM's) and submarine-launched ballistic missiles (SLBM's) with a single strike with the aid of space-based weapons, employing systems for the directed transmission of the energy of electromagnetic waves or high-energy particle beams over long distances. This report, which is not comprehensive, discusses the destructive capabilities of a space antimissile system with regard to ICBM's; it is assumed that the conclusions of the report will apply for the most part to SLBM's as well.

Recent studies in the West have indicated that certain technical prerequisites exist for the creation of systems for the directed transmission of energy over distances of tens of thousands of kilometers. Powerful space-based laser systems for the transmission of energy from power plants in space to power supply networks on earth, for the transmission of energy to passenger aircraft engines, for the transfer of space vehicles from low orbits close to the earth to geostationary orbits and so forth have been widely discussed in the United States since the middle of the 1970's. In addition, the use of directed energy systems for military purposes has also been discussed in recent years. This has been accompanied by a rapid increase in the power of

continuous-wave lasers (from a few milliwatts in the first models of the early 1960's to megawatts at the end of the 1970's).

Directed energy weapons are distinguished primarily by the high-speed dispersal of destructive agents (electromagnetic waves or high-energy particles), at a speed close to the maximum in nature--the speed of light. Within the characteristic range of thousands of kilometers of the space-based laser or beam weapons, destructive agents will reach the target within around a hundredth of a second, within which time the target can only move a few dozen meters. This virtually excludes the possibility of maneuvering the target to avoid attack and considerably simplifies the projection of target trajectory in comparison to conventional ABM systems.

Various systems in quite diverse stages of technical development are being considered in the United States as possible components of a directed energy weapons system:

Infrared, visible and ultraviolet lasers;

X-ray lasers with a nuclear charge;

High-energy particle accelerators;

Ultra-high frequency ray generators.

The realization of the potential advantages of sources of directed energy as space-based weapons systems, judging by UN materials and Western sources, will necessitate the resolution of several extremely complex technical problems connected with the following:

- a) the need to secure the concentration of energy to the density required for the destruction of a target;
- b) the creation of energy concentration devices with an extremely low consumption level to reduce the total energy requirements of the system;
- c) the creation of sources of electromagnetic rays or high-speed particles with enough power to destroy many targets over a short period of time;
- d) the creation of sources of the electrical or chemical energy needed to feed sources of electromagnetic waves or particles;
- e) the creation of systems for the detection (and tracking) of targets and the guidance of sources of directed energy, and for the ascertainment of target destruction;
- f) the creation of space vehicles for the deployment of weapons systems;
- g) the creation of effective means for the protection of these vehicles from enemy countermeasures.

A brief analysis of the possibility of satisfying the abovelisted requirements of the space-based directed energy weapons systems, based on articles in the foreign press, is presented below.

TARGET DESTRUCTION THRESHOLD. According to reports in the American press, the walls of the fuel tank are the most vulnerable part of the ICBM. The energy density required for the destruction of existing ICBM's with heat has been estimated at 500-1,000 joules/cm². This applies to liquid-propellant ICBM's; the resistance of solid-propellant ICBM's should be higher due to their thicker and stronger walls. The destruction threshold could be raised to 10-20 kilojoules/cm² with the use of reflective and camouflage coatings. The further elevation of the destruction threshold is complicated by the weight restrictions of these structural elements.

The nose cones of the ICBM's are much more resistant because they are designed to withstand extremely high re-entry temperatures. For example, the Jupiter probe developed for Project Galileo should withstand pressure of around 100 millijoules/cm² for 2 minutes. For this reason, there is the assumption that the ICBM can be destroyed most effectively during the boost phase of the trajectory; hereafter we will assume that this phase lasts 100 seconds. The destruction threshold of aircraft and cruise missiles is believed to be comparable to that of ICBM's with liquid-propellant rocket engines.

The destructive effects of high-energy particles (electrons or protons) depend to a considerable extent on their energy. For example, whereas protons with energy of around 30 Mev have a penetration rate of 1 g/cm² (3 mm of aluminum), with 100 Mev the average flow is around 10 g/cm², and with 1,000 Mev it is 400-500 g/cm² (depending on the atomic number of the target substance). Besides this, the release of energy is not uniform throughout the flow. Losses of relativistic particles are around $\frac{2}{g/cm^2}$ Mev, and it is only at the end of the flow that the proportional release of energy is much higher.

High-energy particles can have the following effects on a target: They can burn a hole in the wall; they can melt or destroy electronic guidance and control devices; they can detonate the explosive substance in the warhead.

These have the following energy requirements, in joules per cubic centimeter:

Melting of aluminum--3,200,
Detonation of explosive--250,
Melting of silicon--7,000,
Recombination of electrons and "holes" in circuits--1,000,
Destruction of circuit thresholds--25.

THE CONCENTRATION OF THE ENERGY of laser beams is accomplished primarily with the aid of systems of mirrors. These systems are subject to fundamental physical limitations connected with defraction at the mirror's edges. Even when optical surfaces and the wave front of the laser light are ideal, focus-intensity cannot be enhanced infinitely.

Deterioration of the quality of optics and the wave front of the laser source can reduce the maximum intensity of Mach one and increase the diameter of the focus spot.

Here is some information about one type of space-based BMD system announced by the United States. It consists of 18 combat stations in three polar orbits with a range of around 5,000 km. Each will have a 5-milliwatt laser and a mirror 4 meters in diameter. If this system is to secure the destruction of existing ICBM's at the extreme limit of its range, the laser power should be 150 milliwatts, and not 5 (with a mirror of the same size); increasing the diameter of the mirror to 15 meters would allow for the use of a 10-milliwatt laser, in which case the focus spot would decrease in size to 1 meter.

The development of a mirror with accuracy close to the diffraction limit is a serious technical problem, but it could be solved in principle. Directed energy systems in this space-based BMD system would have radiation emission requirement of 10^{-7} - 10^{-6} rad.

LASER SOURCES AND ENERGY SOURCES. Power values of several megawatts, close to those necessary for space-based combat stations, have been achieved in gas dynamic CO₂ lasers with a wavelength of 10.6 mcm and chemical HF lasers with a wavelength of 2.8 mcm, using a hydrofluoric mixture. Chemical lasers are considered to be the most suitable for space-based systems; this is due to the shorter wavelength and the better wave front, allowing for the higher concentration of energy. The TRW firm has been working for several years on a 5-milliwatt HF chemical laser; the first tests were conducted in 1980. The power of HF lasers has no physical limitations; technical problems are connected with the augmentation of laser dimensions and fuel reserves.

As demonstrated above, the reduction of the operating laser wavelength reduces the power requirement ($P = \lambda^2$), but it also requires the use of better optics. Excimer lasers (KrF, $\lambda = 0.25$ mcm and others), iodide chemical lasers ($\lambda = 1.3$ mcm) and free-electron lasers (a laser combined with an accelerator) could be considered as possible candidates. At present, however, these lasers have not reached the necessary level of technical perfection.

As the **SOURCE OF ENERGY FOR HF CHEMICAL LASERS**, the most realistic candidate in the next few years in the space tiers of the antimissile system is the energy stored in a mixture of H₂ and F₂, constituting 13 kilojoules/g; this figure is reduced by approximately three-fourths by deviations from the optimal balance of elements and the addition of neutral particles to prevent detonation. The efficiency of the present lasers using HF is around 3 percent, and the effective release of laser energy could therefore amount to around 100 joules/g. A 5-milliwatt laser should use 50 kg of the working mixture a second, or 45 tons in 15 minutes. Heat loss could be effected primarily as a result of discharged spent mixture.

It is believed that nuclear reactors could feed excimer lasers and free-electron lasers. The discussion of plans for power facilities with reactors of dozens of megawatts is an extremely complex technical matter. It is unlikely that these facilities will be established before 2000.

X-RAY LASERS. The possibility of generating coherent light in the X-ray range is of considerable interest in the scientific and the applied respects. Possible ways of generating coherent X-ray light were already proposed in the 1960's, and the main difficulties involved in the creation of X-ray lasers were discovered at that time:

The fact that cold matter is highly impervious to X-rays;

The need for powerful sources of excitation in connection with the high energy of some photons and the extremely short de-excitation period;

The impossibility of creating mirror systems and the related need to achieve high linear coefficients of laser amplification to secure generation in a single light flow.

Powerful lasers and high-accuracy electron accelerators were considered as possible sources of excitation in the United States. Laboratory experiments to date have not produced any unequivocal results.

Published reports on an experiment in the generation of an X-ray laser during an underground nuclear test in Nevada suggested the possibility of using nuclear-powered X-ray lasers in space-based BMD systems. According to some American sources, a combat station with X-ray lasers could have the following design: A small nuclear device could be located in the center of the space vehicle. It would be surrounded by several dozen lasers, with agents in the form of thin rods 1-2 meters long. Each of the rods should be aimed at a target; the explosion of the nuclear device would then simultaneously destroy several dozen targets.

Several estimates indicate that the effectiveness of X-ray laser BMD is seriously doubtful. Besides this, the possibility of guiding the rods and maintaining this guidance during a nuclear explosion is far from tangible and could require tests in outer space in violation of existing agreements.

ULTRA-HIGH FREQUENCY GENERATORS. Reports in the American press about directed energy systems sometimes mention microwave beams but do not describe any specific systems. The creation of powerful space-based UHF generators is technically possible in principle; American plans for solar space power plants envisage UHF generators with a capacity of several thousand megawatts. The main difference between combat systems and power supply systems should consist in the use of shorter wavelengths for the effective focusing of UHF radiation. For example, with a wavelength of 1 cm, a focal spot of 10 m at a range of 1,000 km will require a 1,000-m antenna. The required dimensions far exceed those of contemporary space structures, and it is unlikely that these systems will be created within the near future.

CHARGED PARTICLE BEAMS (electrons or protons) are dispersed without losses only in a vacuum--that is, at altitudes of 200-300 km or more. The workings of the directed penetration of powerful charged particle beams have just begun to be studied.

Charged particles are diverted by the earth's magnetic field, and the radius of the curve is around 200 km even for gigaelectron-volt particles, which precludes the use of charged particles to fire at targets at a distance of 100 km or more.

The current assumption is that the only real possibility of using high-energy particles for the space BMD system will consist in the creation of beams of neutral hydrogen atoms by recharging H-ions (with conversion into H^0), accelerated to the necessary energy, on a gas target with around 100-percent efficiency; the physics of these processes have been studied in sufficient detail.

There are accelerators now, for example, in Los Alamos, where H-ions are accelerated to several hundred megaelectron-volts. A special linear accelerator is also being perfected there for BMD projects with H-ion energy of 50 Mev and a current of 0.1 A.

In view of the contemporary American accelerator technology, the length of the accelerator section in this machine should be several hundred meters. The delivery of this kind of accelerator to outer space and its assembly there would be an extremely difficult task. An important technical parameter dictating such large dimensions is the rate of energy acceleration--in existing accelerators it is around 2 Mev/m.

Since the speed of the target would be around 10 km/sec and the size of the target would not exceed a few meters, the "shot" should not take long--only a few tenths of a millisecond.

It is significant that H^0 atoms represent a loosely bound system and can easily lose electrons in interaction with residual gas in the upper strata of the atmosphere, turning into protons subject to the influence of the earth's magnetic field. For this reason, neutral beams of hydrogen would apparently be effective only at altitudes exceeding 250-300 km. This same fact, incidentally, could lie at the basis of a system of defense against beam weapons using beams of neutral hydrogen atoms. The simplest type of defense would consist in the creation of a gas cloud around 100 km from the defended object.

The efficiency of converting high-frequency energy into charged particle energy is quite high (around 10 percent), but the required power of 10^6 - 10^7 milliwatts is extremely high. It can be secured by special energy accumulators (flywheels or capacitor batteries) of substantial size and weight.

The targeting of the beam of neutral atoms will be accomplished by changing the direction of the beam of the initial H-ions, most easily done with the aid of magnetic fields. This kind of steering magnet would require extremely high accuracy, and it will therefore have to be carefully shielded from the earth's magnetic field.

SYSTEMS FOR THE DETECTION, TRACKING AND ASSURED DESTRUCTION OF TARGETS.
According to the data above, the diameter of the laser focal spot at a range

of 5,000 km with a mirror 4 meters in diameter could reach 3.5 meters. The accuracy of the laser beam must be several times smaller. Consequently, the BMD detection and tracking system should have an accuracy of around 1 m/5,000 km or $0.2 \cdot 10^{-6}$ rad. The Lockheed firm is working on the prototype of this kind of system in the Talon Gold project. Its first tests on the space shuttle should be conducted in 1987.

The requirements for this kind of system for BMD combat stations far exceed those made on the experimental device for elementary detection. The BMD scanning system must be able to detect around 1,000 targets within 100 seconds, determine their coordinates with an accuracy of around 10^{-7} rad and predict the movement of each target during the period of time necessary for its destruction.

The focusing of the laser mirror on the target can be accomplished in two ways in principle: by turning the entire station or by turning the outer surface of the laser system mirror (coelostat).

The required tracking accuracy (10^{-7} rad) has already been reached in astronomical observation satellites (Copernicus, IUE and ST). But the tracking requirements of combat stations are complicated by the much higher (around 10^3 times) speed of rotation and the much higher levels of excitation due to the operation of the laser and the spent mixture disposal system. The tracking system entailing the movement of the secondary mirror (coelostat) is expected to be the most effective. The development and creation of a tracking system allowing for the detection and destruction of many targets within around 0.1 second for each target with a high degree of reliability under the conditions of possible counteraction represent a fundamentally new technological objective.

The operational principle of the system for the verification of target destruction will depend largely on the type of ICBM, the launching system and so forth. The development of this kind of system has not been publicized in the U.S. press.

SPACE VEHICLES OF THE BMD SYSTEM. According to some American estimates, the laser system of a combat station with 5 milliwatts of power and a 4-meter mirror will be 6-8 meters in length and will weigh 17 tons, and it will fit into the cargo bay of the space shuttle. The working mixture needed to operate the laser for 15 minutes will weigh around 45 tons (see the section on "Laser Sources and Energy Sources") and the shielded tanks will weigh at least 10 tons--that is, the total weight of the station will be around 72 tons, and it will take six space shuttle flights with an additional booster vehicle to put it in polar orbit. The deployment of an 18-station BMD will require a minimum of 126 shuttle launches into polar orbit. It has been estimated that this system will be capable of destroying 15 missiles within 100 seconds (if the ICBM's are launched simultaneously and if two operating stations are present over the launch site).

Laboratory models of some elements of the system (powerful lasers, optical equipment and scanning systems) already exist. The technical perfection of the system as a whole, judging by published data, has not begun.

The deployment of more powerful combat stations with mirrors of 10-15 meters and lasers with dozens of megawatts of power will require the creation of new heavy carriers, and the weight of the stations with the working mixture for the lasers could reach 800 tons.

All of these estimates do not take into account the set of means and measures needed to protect these space combat stations from feasible means of destruction and counteraction. The provision of these stations with the means of defense could perceptibly complicate the requirements made on their design, increase the amount of time required for their development and compound the cost of the program.

Combat stations with high-energy particle accelerators will have to be quite long (100-150 m) due to the length of the accelerator. These stations (with a nuclear device capable of generating up to 100 milliwatts of electrical power) should weigh several hundred tons.

Summing up the above discussion and the conclusions of Western specialists, we can make the following statements about several scientific and technical problems in the creation of the space tiers of the antimissile system:

The creation of a system of combat stations with 5-milliwatt lasers and 4-meter mirrors is within the bounds of existing technical capabilities in principle, but the key elements of the system exist in the form of laboratory models at best, and the technical perfection of the system as a whole has not begun;

A system of 18 stations will be theoretically capable of destroying only around 15 ICBM's (with liquid-propellant engines) within 100 seconds (in a mass launching) or up to 100 ICBM's within 15 minutes (launched in intervals); this presupposes the simultaneous operation of two combat stations; the technically possible increase of ICBM resistance to lasers to 10-20 kilojoules per square centimeter would make this system absolutely incapable of destroying ICBM's;

Enhancing effectiveness to secure the possibility of destroying 1,000 ICBM's within 100 seconds would require the augmentation of the mirror diameter from 4 meters to 15, the power of lasers from 5 milliwatts to 60, and the fuel reserves of each device from 45 tons to 700-800; the necessary features of BMD are beyond the bounds of current technical capabilities and will require the considerable intensification and expansion of the scales of R & D programs; besides this, the creation of this BMD would require the development of a new heavy carrier of the HLLV type;

The enhancement of ICBM resistance to the effects of laser beams will lead to another required increase in the power of the laser (of three to four times) and the diameter of the mirror (of two to three times);

The work on neutral-particle beam accelerators which might be used in BMD systems is in a much earlier stage than the work on high-power lasers, and their creation will require considerable technical effort; the same is true of systems with UHF generators;

The effective use of X-ray lasers in BMD systems is seriously doubtful.

The estimates pertaining to the large-scale BMD using chemical lasers (with up to 60 milliwatts in power and a mirror of up to 15 meters in diameter) apply to a hypothetical ideal system with 100-percent reliability in the efficiency of all of its elements (technical reliability) and in target destruction (operational reliability). It is obvious that a real BMD system will not be absolutely reliable, and this will give rise to the need for standby systems. In the event of partial technical reliability, the minimum standby system will consist of duplicate elements, and possibly even duplicate stations. In the event of incomplete operational reliability, the standby system will require an increase in the number of stations and overlapping destruction zones for weapons.

Even a high degree of operational reliability will not be an absolute guarantee. Let us consider the example of an antimissile system consisting of three "layers," with the operational reliability of each equal to 90 percent. If 1,000 ICBM's are launched, 100 missiles (with, let us assume, 10 warheads each) will pass through the first layer unharmed, and 10 warheads will then reach the target after passing through the next two layers.

2. Some Economic Aspects of the Space-Based Antimissile Weapon Program

Estimates indicate that combat laser devices intended for the effective destruction of missiles in the boost phase of the trajectory should have a light beam of around 60 milliwatts and a space platform with a supply of working substance weighing a total of around 800 tons. The creation of the system will require from 18 to 50 of these platforms to be launched into polar orbit (the deployment of a smaller number in a geosynchronous orbit would require larger expenditures due to the higher cost of their emplacement in orbit, the higher power of lasers, the higher requirements on focusing and tracking accuracy and so forth).*

Total expenditures on the creation of such a system include, in addition to R & D costs, the cost of manufacturing the system; the cost of putting it in orbit; the cost of operating it. We will examine each of these elements separately.

* A fleet of four or five space shuttle vehicles could not put any more than 50 payloads--that is, the amount required for the assembly of just one station--in orbit in a year. Putting the entire system in orbit would take from 1,000 to 2,500 flights, even if the calculations are based on the "net weight" of the platforms, excluding the additional equipment needed for the assembly of stations. The assembly of all 18-50 stations within a reasonable period of time would require: the creation of a new carrier or a dramatic (tenfold) increase in the number of shuttles; an increase (severalfold) in the number of launching, landing and repair complexes; higher expenditures on personnel maintenance and a higher number of personnel, etc.

MANUFACTURING COST. Available estimates of the cost of one space platform with a 60-milliwatt laser range widely from 5 billion to 10 billion dollars. Detailed analyses of these costs are unavailable, but these estimates agree with existing data on the cost of the Spacelab and Space Shuttle programs, with some adjustments for greater volume and more modern and costly equipment. Taking these estimates as a basis, we can assume that the manufacturing cost of a system of stations consisting of 18-50 platforms would range from 100 billion to 500 billion dollars.

LAUNCHING COST. Even on the basis of the special preferential fee NASA established for the Defense Department for the delivery of payloads into orbit by the space shuttle for fiscal year 1982/83 (12.3 million dollars in 1975 prices), it is easy to calculate that the delivery of a 300-ton payload (on the assumption that the weight of a single platform is equivalent to the weight of the working substance) into a near-polar orbit would cost 650 million dollars, and the delivery of a system of stations would cost from 11.7 billion to 33.5 billion dollars.

Since the deployment of this kind of system will require the creation of a new carrier, we can assume that the program for the development and production of the new carrier will cost at least as much as the Space Shuttle program and will take another 15 billion dollars. Therefore, the total cost of putting a platform in orbit will range from 27 billion to 38 billion dollars (excluding assembly costs).

OPERATING COST. These expenditures include, in addition to the cost of the earth and orbital maintenance of the BMD, expenditures on the creation and operation of new missile launch early warning and communication systems (it is assumed that satellites of the Navstar system will be used for navigation) or on the expansion of existing ones. On the basis of available data on the cost of various American space programs and the estimated cost of operating the BMD type of system, we can assume that these expenditures will total at least 10-15 billion dollars.

Therefore, the total cost of the program for the creation of a space-based antimissile system (with just one layer) will range from 140 billion to 550 billion dollars. These estimates agree with the estimates in publicized statements by several U.S. Defense Department officials, who announced during congressional hearings in January 1982 that the creation of a space-based antimissile system would have an approximate cost of 100 billion (for the partial limitation of the losses resulting from a nuclear missile strike) to 500 billion dollars (for the complete prevention of such losses).

It is obvious that the use of available means of defense could increase the required power of the laser weapon and, consequently, its cost several times over.

There will be a corresponding increase in expenditures on space antimissile weapons (not to mention on the broader, multilayered variety of ABM system with a missile component, including land-based missiles) due to the real need for a standby system.

In connection with this, the recent Western estimates of 1.5-2 trillion dollars for a multilayered antimissile system with several space tiers seem valid.

3. General Military-Strategic Implications of the Creation of the BMD

The tremendous technical complexity and unprecedented cost of the space anti-missile weapon put all of the strategic logic of the system's supporters in question. But even if we assume that many bottlenecks (from the technological standpoint) in the space antimissile system itself can be surmounted by the concentration of colossal resources and the massive efforts of scientists and engineers, the system itself will be extremely vulnerable to various means of counterforce.

Despite several statements about its invulnerability, the system of space combat stations will nevertheless be relatively undefended against measures of counteraction and neutralization. These measures can be divided into two main groups: active and passive. Active measures will entail the use of missiles and laser weapons. According to foreign specialists, these include the following:

1. LAND- (OR SEA-), AIR- OR SPACE-BASED BALLISTIC MISSILES. The destruction of combat stations in orbits at an altitude of 1,500-2,000 km, characteristic of the proposed American BMD systems, could be accomplished with the aid of comparatively few ballistic missiles with a speed of 5-6 km/sec in the post-boost phase. These missiles should have a high thrust-to-weight ratio for rapid passage through the boost phase and additional protection from the effects of lasers. Missiles of the Sprint type have these characteristics: They can withstand extremely high heat during movement through the dense layers of the lower atmosphere at a speed of around 5 km/sec. The warheads of these missiles could be similar to the ones for the antisatellite system developed by the American Vought firm for launching from an F-15 plane.
2. SPACE MINES. So-called space mines--satellites equipped with systems of destruction (including missiles) with a relatively small radius of action (a few dozen kilometers) and located in orbits close to the orbits of combat stations--could be used against the stations.
3. HIGH-POWER EARTH LASERS. The combat stations could be vulnerable to earth laser systems. These systems could affect stations for 10^3 seconds, which far exceeds the time allotted for the destruction of a single target from a space station (1 second). Besides this, many of the characteristic limitations of space systems (weight, size and power) would not apply to systems on earth.
4. OBSTACLES SET UP IN THE PATH OF COMBAT STATIONS. "Clouds" of obstacles (heavy balloons) could be put in the path of combat stations and could move at a relative speed quick enough to put the stations out of commission.
5. FALSE MISSILE LAUNCHINGS, causing combat stations to use up their supply of working substance.

The passive means include measures to camouflage missile launchings in a given optical range (all types of smokescreens), the creation of multi-layered missile casings and impervious coatings. Some types of lasers (operating in the visible and infrared areas of the spectrum) can be counteracted to some degree by a choice of coatings with a high reflection coefficient in the given area (in particular, these could include reverse reflectors).

An ICBM launching strategy forcing the irregular retargeting of lasers at different ends of the field of destruction could also have a restrictive influence.

An effective network of means of counteraction could be created much more quickly, and largely with the use of existing technology. According to Western sources, various components and sections of this network are in a much more advanced stage of development than the elements and subsystems of the space tiers of the antimissile system using directed energy weapons. Preliminary estimates also indicate that the system of counterforce means could be much cheaper than a broad-scale antimissile system with space tiers: The price of an extremely effective complex of means of counterforce and neutralization will probably represent 1-2 percent of the total cost. This ratio will be maintained even if more powerful means of counterforce and neutralization are added.

The vulnerability of the BMD intensifies its destabilizing nature and heightens the danger of its deployment because it cannot, in view of this fact, be regarded as an effective means of defense against a massive first strike (as Reagan and some U.S. Defense Department officials promised), but could create the illusion of the relative possibility of defense against a retaliatory (or "second") strike, during which, it is assumed, it would be more difficult to take countermeasures against the BMD.

Therefore, the space-based antimissile system certainly will not accomplish, as the Reagan Administration has asserted, a "transition" from "deterrence through intimidation" to total protection from strategic offensive arms.

Arguments in favor of the stabilizing role of the broad-scale antimissile system would be at least somewhat valid if the Reagan Administration had announced the cancellation of the buildup and improvement of nuclear offensive arms at the same time that it announced the decision to begin developing this system. But we are witnessing the direct opposite: the development of strategic offensive arms, intermediate-range weapons and the entire range of operational and tactical nuclear weapons. This means that the creation of the antimissile system with space tiers will simply complicate the task of deterrence greatly and make it more indefinite, because survival and the limitation of losses in a nuclear war will become more dependent on the delivery of precisely the first strike--so that the antimissile system can be used for defense against the retaliatory strike of the attacked side. Besides this, there will be more incentive for a pre-emptive strike with simultaneous countermeasures against this system.

The tendency to view the projected American BMD as one means of securing a first strike is stimulated by the American side's refusal to pledge no first

use of nuclear weapons and its simultaneous series of undertakings in armed forces organization for the purpose of augmenting first-strike potential. The plans to deploy American intermediate-range nuclear missiles in Europe, especially the Pershing II missiles, are an important element of this policy. At the same time, the Soviet side realized the exceptional importance of stronger strategic stability at a time of increased military and political friction and unilaterally pledged not to use nuclear weapons first in June 1982. In accordance with this pledge, the need to keep military conflicts from escalating into nuclear conflicts is being given even more attention in the training of the Soviet Armed Forces. This has established an even more rigid framework for troop and staff training, the determination of the composition of the armed forces and the organization of even stricter control to preclude the unauthorized launching of nuclear weapons--from tactical to strategic.

In reference to the above comments about the prospect of creating highly reliable means of counteracting and neutralizing a space-based antimissile system, we must assume that the development of these means will evoke the development of weapons to counteract these means. We can also agree with the specialists who believe that while the antimissile system is being created and deployed, strategic offensive weapons capable of breaking through the system will be perfected at a more rapid rate. The creation of the space antimissile weapon could also become a strong incentive for the quantitative buildup of strategic means of delivery and nuclear warheads, especially strategic cruise missiles, including sea- and land-based ones, the deployment of which will be exceptionally difficult (if not impossible) to monitor with national technical equipment.

In several American publications the space antimissile system has justifiably been viewed as an antisatellite weapon as well. In this connection, it must be stressed that the deployment of space antisatellite weapons even on a limited scale could heighten instability because the present military-technical balance depends largely on the existence of monitoring and observation systems using various types of satellites.

It is also significant that the U.S. space BMD system, in the forms being considered by groups close to the Reagan Administration, looks as though it might be intended not only to destroy the other side's satellites and strategic missiles after they have been launched, but also to destroy targets on earth, and again for the delivery of precisely the first strike. The reason for this is that a space-based antimissile weapon accurate and powerful enough to destroy strategic offensive weapons in flight could also be used in principle for the destruction of some of their elements on earth, such as planes on airfields. Furthermore, the American press has reported that the BMD system could also destroy other land and sea targets, including some communication and control media and important economic targets (enterprises, oil refineries, power plants and so forth).

The form of BMD using various types of nuclear weapons can quite justifiably be regarded as a weapon to fire on targets on earth from space. The danger of these plans is compounded by their appeal to the psychologically natural

human desire to be completely protected from the all-annihilating destructive force of nuclear weapons. The promoters of the "Strategic Defense Initiative" are recklessly speculating on these feelings.

This is accompanied by the arguments of several Western specialists that, in accordance with the dialectics of warfare, the predominance of attack must give way, as it has repeatedly in the past, to the superiority of defense, and that the prevailing type of weapon for several decades--nuclear--must give way in turn to fundamentally new means of destruction, in this case the directed energy weapon.

In this connection, it must be said that the reference to the dialectics of the development of the means of armed struggle, which were best revealed, incidentally, by the founders of Marxism (especially F. Engels in his work "Anti-Duehring"), simply sidesteps the issue in the case of antimissile systems. It is true that the historical competition between offense and defense has been marked by alternating victories. But we must not forget that this process was accompanied by the general tendency toward the expansion of the destructive effects of war, especially on the civilian population. World War I provides sufficient proof of this. It is a classic example of predominant defense, which was the reason for its prevalence of position warfare, but it was accompanied by the unprecedented destruction of huge territories in zones of hostilities (the Marne, Verdun, Galicia and others). In this context, nuclear weapons occupy an absolutely separate place as weapons specially created and first used by the United States for the mass destruction of civilians and goods of material value. The prospect of the total annihilation of civilians and the devastation of huge areas has always accompanied any attempts by Western strategists to invent some kind of methods of using these weapons to accomplish more traditional military tasks--the delivery of "limited" or "selective" strikes.

If the new American plans for a broad-scale antimissile system are implemented, the future competition between offense and defense will not eliminate the inevitable destructive implications of war and certainly will not secure the "reliable defense" of the civilian population. The opposite is more likely: The perfection of offensive weapons for the purpose of surmounting defense will result in a sizeable absolute increase in probable losses in the event of war.

4. The Antimissile Weapon and European Security

The abovementioned military-strategic and international-political consequences of the creation of a broad-scale antimissile system with space-based elements apply completely to the situation in Europe as well, because they will be of a global nature. At the same time, in terms of a number of basic parameters, this issue has some distinctive aspects in relation to the maintenance of the strategic balance and international security directly on the European continent.

It is probable that many of the supporters of this program in Washington did not expect such a negative reaction to the projected broad-scale antisatellite

system with space tiers from representatives of the most diverse political parties and governments in Western Europe, including those known to be extremely loyal to their overseas partner. It must be said that this negative reaction often was and is motivated by considerations far removed from the desire to put an end to the arms race and conclude arms limitation and reduction agreements. It is more likely that this was a case of misgivings about the reorganization of the entire existing paradigm of strategic balance and politico-military relations on the continent, about the gradual effect of the creation of antimissile systems and the extension of the arms race to space on the situation in Europe and the rest of the world.

When the Reagan Administration was confronted by this reaction, it made vigorous attempts to neutralize it, and even to change the official position of some West European states. The general public and the political and state leadership of various West European countries are being subjected to concentrated pressure. In search of support for its plans, Washington has made the issue of participation by NATO allies in the "Strategic Defense Initiative" program one of the central and fundamental issues of loyalty, and this is naturally affecting the attitudes of these West European states toward U.S. behavior in this sphere.

In its attempts to encourage its allies to participate in the SDI program, the Reagan Administration is making active use of the thesis that this is practically the only way for Western Europe to keep up with scientific and technical progress and to acquire quicker access to new types of military equipment and technology that can subsequently be used successfully for commercial purposes. It is trying to convince the leaders of these countries that the refusal to participate in the program will exclude them from the frontiers of scientific and technical progress, because it is precisely within the confines of this program that key ideas will be generated for the most important fields of modern science. It must be said that this is far from true.

First of all, an analysis of the military sector of the U.S. economy during the period since World War II proves that military R & D expenditures are not an effective accelerator of scientific and technical progress. Contrary to the quite popular opinion in the West, military research has never been the main source of innovations.

Besides this, the very nature of military research in recent years has made its results less and less suitable for civilian use. The commercial use ("spinoff") of the results of military projects has displayed a constant decline. Whereas piston-engined aircraft could be used with almost no changes for military and civilian purposes, and whereas the development of the jet engine led to the appearance of high-speed passenger aircraft, the very idea of supersonic transport planes entailed serious difficulties in its implementation. The flights of the Anglo-French "Concorde" plane serve mainly prestigious aims. This is also true of more specialized military projects. The creation of modern space-based missile complexes, their highly accurate tracking systems and their specialized electronic equipment, such as interference-suppressing devices, is not at all likely to serve any practical civilian purpose.

In general, it can be said that the "spinoff" of military research is now moving increasingly in the direction of technological processes, materials and so forth, created during the course of military projects, since the results themselves cannot find civilian application.

Of course, even the by-products of military projects could be used for civilian purposes, but it is obvious that they could have been obtained with incomparably smaller outlays if the research had immediately been aimed at the attainment of civilian objectives and financed just as generously as military projects.

The U.S. Defense Department has never played an important role in the generation of innovations in the civilian sector, and this role is constantly diminishing. The Pentagon has been more likely to appropriate discoveries made in the civilian sector and spare no expense in putting them to military use. Of course, in this case it has played the important role of the guaranteed "first user" by acquiring a product too complex and costly to be sold on the civilian market. Today, however, the military establishment's role as the first user of science-intensive products, providing the chance for the development of a new technical field, has also diminished perceptibly. The civilian market is being supplied with more and more complex technical equipment, and its manufacture and improvement are giving companies a chance to finance their own development projects.

It must be said that a comparison of the experience of, for instance, the United States and Japan conclusively proves that direct civilian research produces an incomparably greater economic impact than the use of the results of military projects for commercial purposes. After all, even military and civilian R & D projects in closely related fields are conducted with absolutely different aims in mind. In military R & D, unconditional priority is assigned to the guarantee of the necessary functional and qualitative characteristics of a system and almost no attention is paid to the outlays the fulfillment of these requirements entails. For this reason, many products connected with the civilian use of the results of military projects are too high-priced to be competitive.

Therefore, the more extensive involvement of the United States' allies in the space BMD military projects certainly cannot serve as an effective way of accelerating scientific and technical progress. Besides this, many prominent politicians and scientists in the West have correctly noted that the United States is pursuing goals differing from officially declared aims in its encouragement of its allies to participate in this program.

Just as it was able to mobilize the capital of its allies to finance its own programs by manipulating bank interest rates and the dollar exchange rate, the United States is actively striving to enlist the research potential of leading foreign companies. In this process, as DER SPIEGEL remarked, the United States is taking advantage of its political superiority "to channel all technology transfers in a single direction--from Europe to America." It obviously wants to use the SDI program to improve the competitive position of American products in foreign markets. It is no secret that the declining

competitive potential of American goods is largely a result of the bias in favor of military R & D in the expenditure of government funds. Now certain groups in the United States want to involve the allies more actively in the largely unproductive military research.

It is obvious that the United States will be able to withstand the pressure of the ally-rivals with the aid of the SDI program in fields where the results of military research can have a substantial commercial impact. In essence, the organization of the intergovernmental program for an antimissile system with space tiers can be interpreted as a protectionist measure to guard American markets for civilian products.

Participation in this program will automatically assign the United States' allies the role of "eternal runners-up" and will exclude any possibility of their leadership in any key area of scientific and technical progress.

Participation in the broad-scale BMD program will put the companies of the allies within a rigid organizational framework with the assigned role of "second-rate subcontractors."

Participation in this program will also have another important indirect effect on the United States' allies. By agreeing to take part in research in this field, they are admitting that the creation of this system in the future is quite probable. In this way, they are helping to validate the current U.S. military-strategic theories in accordance with which the different types of non-nuclear weapons being developed today will play an increasingly important role in the future. And this means that they will have to considerably increase their contribution to military preparations. Whereas they were mainly spectators in the race in the strategic nuclear triad between the USSR and the United States, according to the new theories each American ally will have to increase arms developments and purchases substantially. Besides this, people in the United States hope that the allies will have to import many new weapon systems and thereby essentially take on part of the American expenditures on their development. In general, the augmentation of the allies' military burden will have a noticeable restraining effect on those which are competing too energetically with the United States.

Washington hopes to convince the West European NATO members that when the United States has created its antimissile "shield," it will allegedly use it for its own protection and for the protection of these states in Western Europe.

When we examine the possibility of creating any form of antimissile defense with the slightest pretense of effectiveness in Europe, we must bear in mind primarily the specific nuclear weapon carriers determining the balance of power in this region. When the United States began deploying the Pershing II intermediate-range ballistic missiles (IRBM's) and land-based long-range cruise missiles in Western Europe, there was an approximate balance of intermediate-range nuclear weapons in Europe. Besides this, both sides have many means of delivering tactical nuclear weapons there. Furthermore, the Western side has French and English tactical nuclear weapons in addition to the American ones.

The flight time of the IRBM is much shorter (one-half or one-third as long) than that of the ICBM or even of many SLBM's. The IRBM is also much lighter than the ICBM and therefore has a shorter launching phase, during which, as was pointed out in previous sections of the report, ballistic missiles represent the most vulnerable target to space antimissile weapons. All of this is even more characteristic of operational and tactical ballistic missiles.

The proportional number of IRBM's in the total balance of all opposing nuclear arms is lower than the number of, for example, ICBM's or SLBM's. But after all, the detail of antimissile weapons intended for the destruction of IRBM's could obviously also be much smaller than the ICBM intercepting detail. Aviation, which is not a target of interception by ABM space tiers, plays a significant role in the balance of intermediate-range weapons in Europe. And various battlefield carriers of nuclear weapons will not be covered by it at all. This also applies completely to long-range cruise missiles of diverse basing systems, which could be used to destroy targets in Europe.

Several American and West European specialists have recently taken several opportunities to argue that, in view of this fact, the only serious method of securing BMD would be the creation of antimissile forces for limited use, primarily for the defense of specific objects, or a zonal ABM, but under no circumstances a territorial ABM system. Even the attainment of these relatively limited objectives, however, will entail colossal difficulties and expenditures and cause the additional destabilization of the military-strategic situation in the region, commensurate in no way with the potential military and politico-military impact anticipated by the supporters of this kind of ABM system.

In view of the particularly high population density in Western Europe and the proximity of military objects to populated points, the deployment of BMD objects seems even less justifiable. In general, politico-military, scientific-technical and financial-economic logic indicates that all of the talk about a "shield" which would cover Western Europe as well, is unfounded.

In reality, American strategists hope to cover the United States with the "shield" at a time of crisis and use Europe as the scene of various types of military actions, which could be ended, as the reports of U.S. Secretary of Defense C. Weinberger have repeatedly suggested, on terms convenient for the United States. This is the reason for the deployment of American intermediate-range missiles in Europe and for the adoption of the doctrine of the "air-land operation" by U.S. ground forces and of the concept of the "deep-echeloned strike" by NATO.*

* The "air-land operation" concept envisages the combined use of nuclear, chemical and conventional weapons at a depth of up to 150 km. The new NATO doctrine, on the other hand, envisages the use of only conventional weapons, but at a depth of up to 400 km.

The United States' renunciation of the no-first-use principle, which has a special meaning for Western Europe, further corroborates this interpretation of the American plans for the creation of an antimissile "shield."

The most reasonable alternative to the destabilizing addition of antimissile weapons to the military-strategic equation in Europe would be the implementation of the Soviet Union's proposal that this region be completely free of nuclear weapons--both intermediate-range and tactical.

5. International-Political Aspects of the Creation of the Space BMD System

The commencement of tests (not to mention the deployment) of space antimissile weapons would violate the open-ended USSR-U.S. treaty on the limitation of ABM systems, signed in Moscow on 26 May 1972. Point 1 of Article V says: "Each of the sides undertakes not to create, test or deploy sea-, air-, SPACE- (emphasized by the authors of the report) or mobile-land-based ABM systems or components." The Soviet-American ABM treaty is particularly important at the present time.

The implementation of the part of the "Strategic Defense Initiative" program pertaining to the creation of an X-ray laser (often called a "third-generation nuclear weapon" in the United States) with a nuclear charge will violate the 1967 treaty on outer space, Article IV of which says that signatories will undertake "not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction...or station such weapons in outer space in any other manner."

Even if Soviet-American relations improve within the foreseeable future to such a degree that the American side will be politically prepared to conclude mutually acceptable and equitable strategic arms limitation and reduction agreements, the existence of tested and deployed elements of a space antimissile system even on a limited scale could considerably complicate the negotiation process and considerably reduce the chances for the timely conclusion of a Soviet-American agreement.

The addition of another (qualitatively new) component to the structure of strategic forces by one or both sides will greatly complicate and confuse the entire system for the assessment of the strategic balance and create additional difficulties in the assessment of the relative strength of negotiating partners. Furthermore, it is most probable that development in this sphere by the leading two nuclear powers will take different directions, as in the case of strategic offensive arms, and this will make the strategic forces of the sides less symmetrical and even more difficult to compare. The asymmetry could be even greater in view of the potential means of counteraction and the subsequent creation of systems to destroy the means of counteraction and neutralization.

The addition of a space antimissile system and means of counteraction and neutralization will make it much more difficult to reach agreements on the limitation and reduction of USSR and U.S. strategic forces.

Among the international-political implications of the deployment of the U.S. space antimissile system, it would be impossible to ignore the fact that its creation will erect an effective barrier in the path of Soviet-American, and international in general, cooperation in the use of outer space for peaceful purposes. The potential value of this cooperation, however, seems quite significant from the economic and technological standpoints, since the space programs of the USSR and United States are intersupplementary in terms of many parameters. This cooperation would also be quite valuable from the politico-psychological standpoint--from the standpoint of the improvement of the entire atmosphere of Soviet-American relations and the guarantee of trust between the peoples and leaders of the two great powers.

The Soviet Union's approach to this issue was reflected in the Soviet initiatives aimed at preventing the use of space as a bridgehead for attack weapons and the elimination of all of the military-political dangers and economic outlays connected with this tendency. In August 1981 the USSR proposed a draft treaty on the prevention of the deployment of any kind of weapon in outer space. This was followed by a new Soviet initiative in June 1983--the draft treaty on the prevention of any use of force in outer space, as well as from space against targets on earth, distinguished by a combination of international legal measures with measures of a material nature. The first would prohibit, on a mutual basis, certain actions of a military or hostile nature which might signify the beginning of military operations in space and most probably be followed by the rapid escalation of the armed conflict from "space to space" combat operations to "earth to space" and "space to earth" strikes and eventual "earth to earth" strikes, including a total nuclear exchange. The Soviet draft envisages the mutual refusal of both sides to use force from space against any space objects and from space against objects on earth and in the air. The draft also clarifies the meaning of the use of force against space objects and covers all possible loopholes and detours for antisatellite actions and for the use of various types of manned space ships for this purpose.

The measures of a material nature include proposed steps to prohibit the development, testing and deployment of new weapons systems in space for the delivery of strikes against space objects and targets on earth and in the air. The mutual elimination of the states' existing antisatellite systems is also proposed. The Soviet Union also expressed its willingness to negotiate the appropriate measures to verify and inspect the observance of this agreement.

Physical arms limitation and disarmament measures would play the most important role in the reinforcement and implementation of legal agreements. To contribute to the institution of such measures and promote Soviet-American talks on this matter, the Soviet Union also pledged unilaterally in June 1983 not to put new antisatellite systems in space as long as the other side refrains from such steps.

The Soviet Union's proposal on the conclusion of a treaty on the non-use of force in space and from space against earth and its unilateral pledge evoked widespread positive responses from the international community.